



Ranger V4.4 Installation Guide
September 2017

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1 Safety and Aftermarket Equipment

	<p>WARNING</p> <p>Failure to install the equipment as recommended could cause or contribute to an accident and result in serious injury or death or substantial property damage.</p>
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The use of aftermarket equipment in motor vehicles can compromise a vehicle’s safety-related design characteristics, including but not limited to the following examples:

- Airbags - Obstruction of airbag deployment
- Passenger compartment - Ergonomic problems, physical obstacles
- Trunk/gas tank protection - Trunk-mounted equipment to exacerbate tank vulnerability in a rear collision


 This product must be installed by qualified installation personnel only. The installer must be trained in industry best practices for aftermarket vehicle installations.

The training would include but not be limited to the methods described in the following sections.

1.1 Installing Cables

The appropriate methods for installing cables such that:

- The operation of the vehicle is not interfered with.
- The installation process does not damage or interfere with other vehicle components and/or systems. Wiring is kept clear of sharp objects, sources of heat and any other hazard that could damage the cable or wire.
- Wiring is secured such that it does not cause damage to the equipment itself and other equipment or interfere with the operation of other systems and devices.
- Wiring through bulkheads is performed such that wiring does not chafe, and a seal is maintained between compartments.
- Appropriate and industry standard fasteners, splices, connectors and ties are used for the vehicle environment.
- Appropriate slack is in place to prevent straining of the wire, cable or connectors.
- Any other issue that could affect the integrity of the wiring or the safe operation of the vehicle is addressed appropriately.
- All wires connected to power sources are fused at the power source.

	<p>WARNING</p> <p>This product is to be installed by qualified installation personnel only.</p> <p>Incorrect installation may result in fire or contribute to a serious accident.</p>
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1.2 Mounting Equipment

The appropriate methods for mounting equipment in vehicles must be applied such that:

- The equipment does not interfere with the safe operation of the vehicle.
- The equipment is attached to the vehicle as securely as possible to minimize the risk of the equipment breaking free in a collision.
- The installed equipment does not interfere with the deployment of air bags.
- The installed equipment does not obscure displays or interfere with the ability of the driver to operate other vehicle systems and components.
- The installation process does not damage other vehicle systems or components. Compartments remain sealed against the elements.

1.3 Use and Operation of Required Tools

To ensure the correct use and operation of the required tools.

- The installer must have the ability to read, understand and follow the instructions in the installation manual.
- The installer must be equipped with the correct tools for performing each installation operation.

The customer must ensure that the installation of all equipment provided is safe, used for its intended purpose, and is in continual accordance with all applicable codes, rules, regulations and guidelines provided by motor vehicle and equipment manufacturers, as well as any state, local or jurisdictional bodies.

2 Introduction

Trapeze Ranger V4.4 is a Windows CE fixed-mount computer used for various systems such as two-way wireless communication, electronic dispatching, and in-vehicle navigation.


This Ranger Installation guide includes directions for successfully installing and interfacing a Ranger into a vehicle. Some wiring and installation procedures may be different for each customer and should be discussed prior to installation. If you need information not covered in this guide, please contact your Customer Care representative.



3 Before You Begin




1. Carefully read the Installation Guide before installing this product. If anything is unclear, please contact your Customer Care representative for support.
2. Ensure that the NEGATIVE battery connection is disconnected before beginning work.

 Some components may lose short-term memory, that is, engine or transmission adaptive parameters, and radio presets after a protracted time without battery power.

3. Ranger should only be serviced by qualified, trained personnel. Attempting to remove the cover or disassemble the device could expose you to dangerous high voltage points.
4. Do not attempt to install or operate a damaged device. If the unit has been exposed to excessive amounts of water; shows evidence of physical damage; or is not operating properly; unplug it from the power source and contact qualified service personnel.
5. Use of thread-locking compounds such as Loctite may cause serious damage to plastic enclosures. Many thread-locking compounds are not compatible with thermoplastics and can lead to stress cracking. This will require the unit to be returned to replace the ABS enclosures.

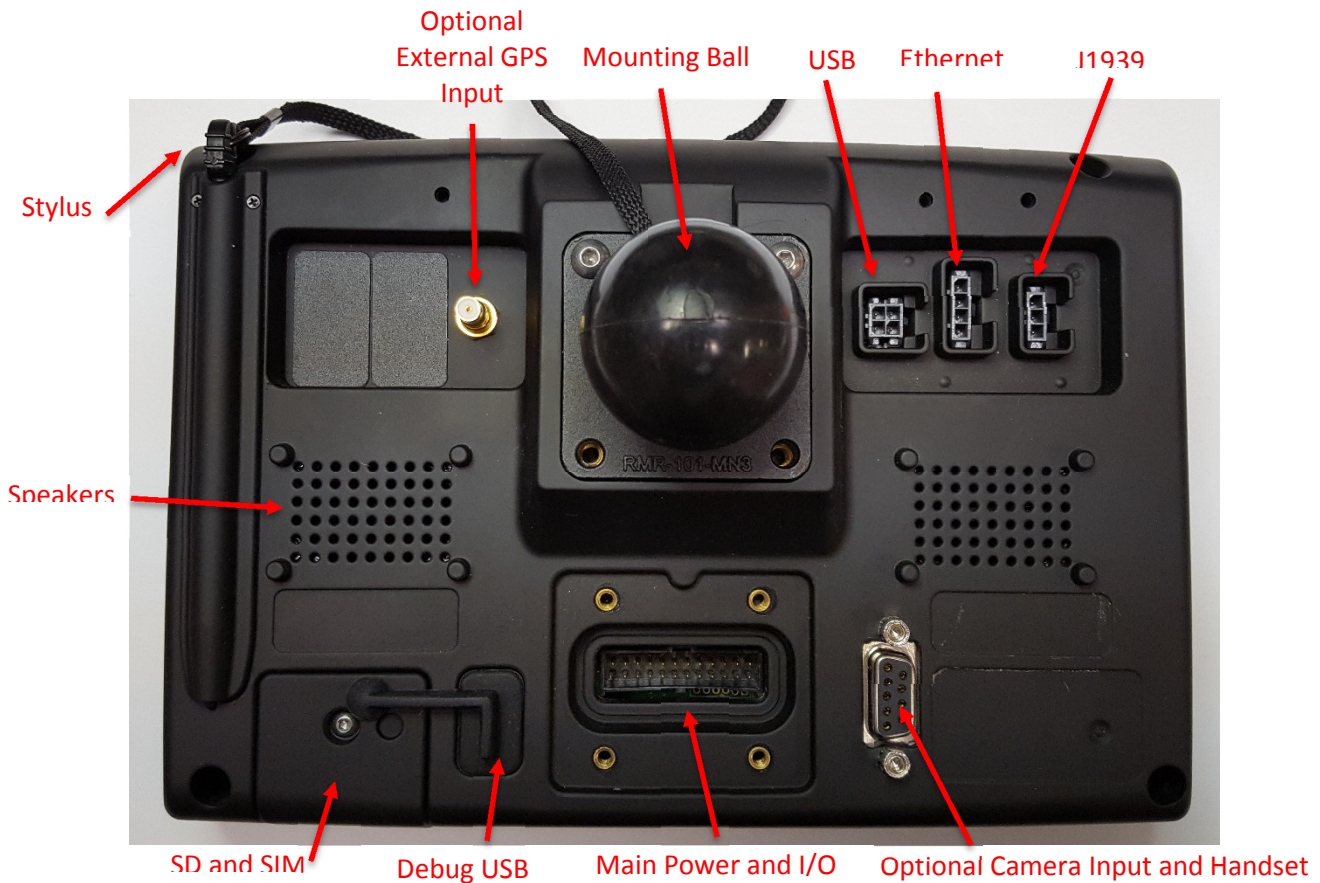
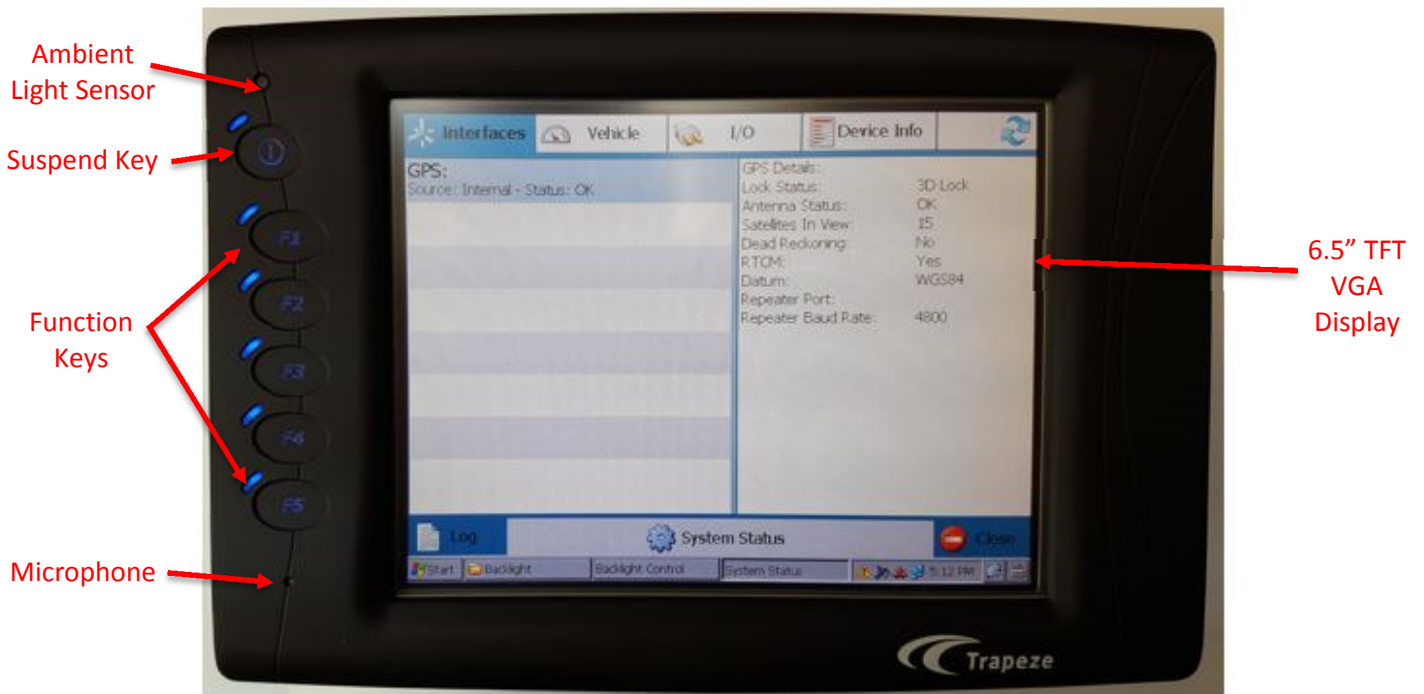
3.1 Care and Cleaning of the Touch Panel

- Do not use high-pressure air, water or steam to clean the surface of the touch panel. The action may cause the touch panel to malfunction.
- Clean the touch panel surface with a dry soft cloth; only alcohol or ammonia-based cleaners can be used with caution when necessary.
- Always dampen the cloth and clean the panel. Do not spray the cleaning agent on the panel itself.
- The touch panel is sensitive to long-term water exposure and any excess moisture should be wiped off. Do not apply adhesive materials to the surface of the touch panel. This can cause permanent damage. This restriction includes stickers, tape and static screen protectors.

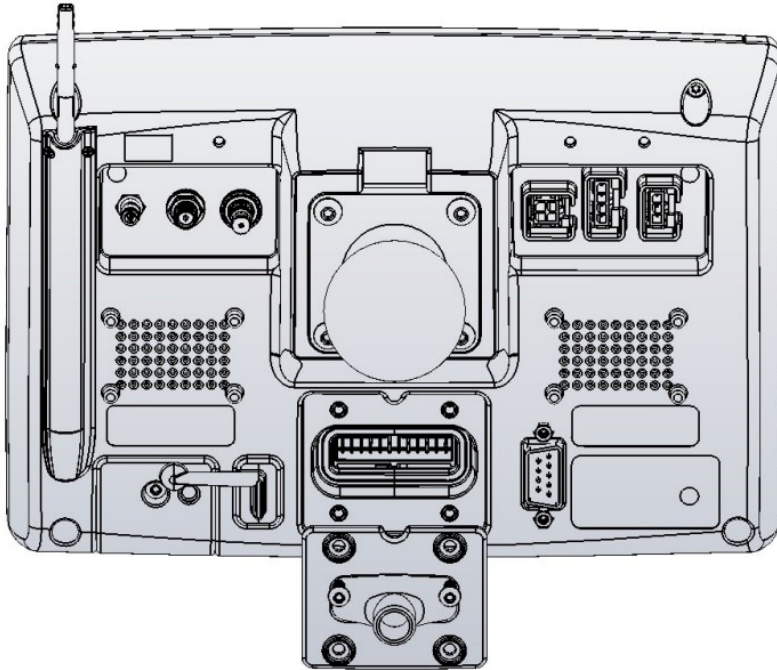
 The use of aftermarket screen protectors is not recommended and may void the warranty of the touch panel.

4 Ranger Overview

The following graphic shows the various components of the Ranger 4.4:



The following graphic illustrates how a typical Ranger V4.4 installation is connected:



Ranger Power Pigtail Cable P/N
4-CAS-RNG4MUL310-00
(Ships attached to Ranger)

DB9
Comm 1
RS 32
Serial Port

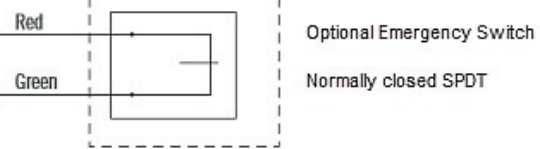
DB9
Comm 2
RS 232
Serial Port

1x3 Molex
J-1708

Minimum Required Connections Cable P/N
4-CAS-PIGTMMMLX20-00

2x2 Molex

Red 3A Vin, 12/24v
Black Ground
Green 2A Ignition Sense
White Odometer
(Typically not used.)




Blue GPI01
Violet GPI02
Orange GPI03
Yellow GPI04

Contact your Customer Care representative for application details.

5 Parts List

Please verify that you have everything that you need to complete the Ranger installation.

 Not all parts are provided.

5.1 Supplied

<p>Ranger</p> 	<p>Ranger Mount</p>  <p>Different types of mounts are available.</p>
<p>Ranger Octopus Cable</p> 	<p>Ranger PowerPigtail</p> 
<p>In-line Cable Fuse</p> 	<p>In-line cable fuse holder - Two holders and fuses are supplied. The 3 Amp fuse is for power and 2 Amp fuse is for ignition input.</p>

5.2 Not Supplied

- Zip Ties
- Glued Heat Shrink
- Tools
- Grommets
- Loom Fasteners

6 Mounting Locations

6.1 Placement

- Ensure that the driver's view of the road is not obstructed.
- Ensure that the equipment is not in the path of any active airbags.
- Ensure that the driver still has access to all controls on the dashboard.
- Ensure that the driver has a clear view of the terminal from the seated driving position.
- Ensure that the terminal is within easy reach of the driver from the seated driving position.
- Ensure that the mounting location is a solid surface. Locations that allow even small amounts of initial movement will loosen the placement of the device over time.
- Before drilling any holes or using screws, check for vehicle wiring under the carpet or behind the instrument panel which could be pinched, cut or otherwise damaged.
- If mounting through the floor, put body sealer over the underbody projections. Stamped acorn nuts, filled with sealer, are available at most body shops for this purpose. This keeps moisture out of the carpet and insulation and forestalls rust in this area.
- If mounting under the instrument panel, be sure that there is no interference with the proper operation of the foot controls.
- Inquire if the vehicle is cleaned with a high pressure water wand. If so, ensure that all equipment is installed somewhere that protects them from this type of cleaning.

6.2 Examples of Suitable Mounting Locations

Ranger Installed in an Orion II Bus



Ranger Installed in a Ford E-Series Cutaway



Ranger Installed in a
Chevrolet 3500 Series Cutaway



7 Installing the Ranger Cables and Cable Cover

The Ranger unit is shipped with a cable cover installed to provide tamper resistance, which can be removed with a 2mm and 2.5mm hex bit. If the cable cover needs to be reinstalled at some point, do so according to the steps described in the following procedure.

Ranger Cable Cover



7.1 Torque Settings

Trapeze recommends that the screws that are used to affix the Cable Cover Plate, Cable Cover and SD/SIM Cover be installed to a specific torque level. Excessive or insufficient torque can lead to product damage and/or failure. Trapeze recommends using a calibrated torque screwdriver for tightening these screws.

To install the Ranger Cable Cover, the following items are used:

- Ranger Cable Cover
- M4 x 12.5mm HEX Button Head Screw (Quantity 2)
- M3 x 8mm hex head screw (Quantity 4)
- Hex bits, 2mm and 2.5mm [**Not Included**]
- 5/16" driver (torque driver preferred) [**Not Included**]

7.2 Cable Cover

To install the Ranger Cable Cover:

1. Connect the Ranger power cable to the power input. Use two M3 screws as shown in the following graphic to fasten the Power Cable Cover Plate. Apply torque to the main cable cover screws to 80 - 90 oz-inches (55 - 65 N-cm).



2. If there are external cables connected to the Ranger unit, attach these cables to the unit.



3. Secure the Cable Cover to the Ranger unit with the screws provided. This requires two M3 and two M4 hex button head screws. Apply torque to the mounting ball and RF cable cover screws to 80 - 90 oz-inches (55 - 65 N-cm).



7.3 SD/SIM Cover

The Ranger will be shipped with the SD/SIM Cover installed. It can be removed temporarily to install a SIM card and Secure Digital memory card.

The SIM and SD card should click into place when installed correctly. To remove the SIM or SD card, depress the card and release and the card can be withdrawn.



To install the SD Cover, position the cover as shown and torque the M3 HEX Button Head screw to 80 - 90 oz-inches (55 - 65 N-cm).



8 Ranger Configurations and Optional Parts

Ranger has several optional configurations that are implemented during the assembly of the unit at the factory. The full list of these options are explained in the following sections.

The Ranger part number label on the back of the unit can be interpreted to give configuration details for that particular unit.

8.1 Unit Numbering Structure

The following list explains the different characters of the part number label to determine what options are included with any specific Ranger. (This numbering format is subject to change.)

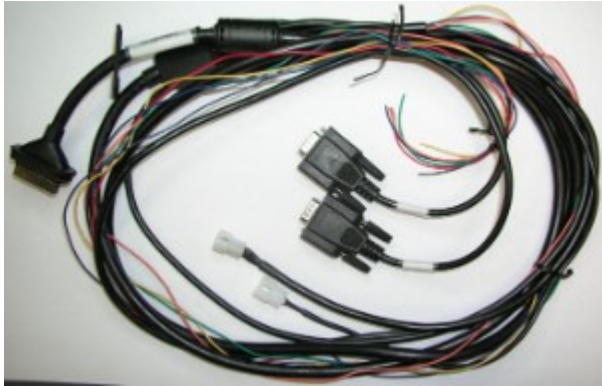
Numbering is in the format “R44-**12345-67**” (Example: “R44-N11T-01”)

Number	Description
1st and 2nd Character	N1= PTCRB variant (For use on many PTCRB member carrier networks) V1 = Verizon variant
3rd Character	0 = Without Bluetooth and WLAN 1 = With Bluetooth and WLAN
4 th Character	0 = No additional options 1 = Rear view camera input 2 = Magnetic card reader 4 = External GPS antenna port X = Sum of above selected options (e.g. 2+4=6 is Mag card reader plus External GPS antenna port.
5th Character	T = Trapeze Logo A = AssetWorks Logo B = Blank – No Logo
6th Character	0 = Window CE6
7th Character	0 = Main Cable Terminated with 24 Pin Molex connector [4-CAS-CGRDMMMLX18-31] 1 = Main Cable with Multiple Terminations (Octopus) [4-CAS-RNG4MUL310-00] 2 = Supplied without Main Cable

8.2 Part Numbers

The part numbers for the Main Cables that are typically included with Ranger V4.4 are:

- P/N: 4-CAS-RNG4MUL310-00 (Octopus cable)



- P/N: 4-CAS-CGRDMMLX18-31 (24pin Molex)
This cable is typically specified when ordering a Ranger V4.4 to replace an existing Ranger V1 or V2 unit.



- P/N: 4-CAS-PIGTMMLX20-00
A power pigtail cable is used with the octopus cable, and provides power, ground, ignition, and odometer inputs to the Ranger unit.



8.3 Adaptor Cables

Earlier versions of Ranger V4 (i.e. V4.2) used M8 connectors for the USB, Ethernet, and J1939 on the back of the Ranger unit. In the event that a Ranger V4.4 is being used in place of an earlier version of Ranger V4, an adaptor

cable can be used. It will allow cables that have already been run inside the vehicle to connect to the new Ranger unit.



- USB Adaptor Cable P/N: TBD
- Ethernet Adaptor Cable P/N: TBD
- J1939 Adaptor Cable P/N: 75T1446

8.4 Additional Cable Parts

USB, Ethernet, and J1939 connectors are always present on the back of the Ranger unit. However, connecting to these ports is optional and may or may not be required in a particular installation.

The cables to connect to these ports can be ordered from your Customer Care representative as required.

The part numbers that you can order are:

- USB Cable - P/N: 4-CAS-RNG4USBDGL-10



- Ethernet Cable - P/N: 4-CAS-RNG4ETHDGL-10



- J1939 Cable - P/N: 4-CAS-DB15RNG427-51



9 Connection Points

9.1 Splicing

T-Taps are not a suitable form of splicing into existing cabling. All splices must be soldered. Adhesive-lined heat shrink must be applied for protection.

9.2 Power

Power connections should be made directly to the battery and fused as close to the battery as possible. Avoid using a cigarette lighter or “Power Point” receptacles as power sources. Trapeze does not recommend wiring power directly to a vehicle kill switch because the Ranger unit will not power down correctly. Appropriate fuses are provided with the installation equipment.

Typically, powering the Ranger unit directly from the battery ensures that voltage drops are kept to a minimum. If it is necessary to power the Ranger unit from an existing circuit, avoid using circuits that are used to power high current accessories such as AC units, heaters, or wheel chair lifts.

9.3 Ground Point

The ground point should be that point where the (-) terminal from the battery is connected to the body. Typically, this connection to the battery is a 6 or 8 AWG black wire connected to the wheelhouse or radiator support.

Do not fuse the ground lead. If the ground-side fuse were to open, the entire supply current is conducted by an alternate current return path, which may cause the feed line to overheat possibly resulting in damage.

9.4 Vehicle Speed Sensor for Odometer Pulses (Optional)

Most installations use the Ranger GPS receiver for mileage tracking, however, in some cases, a wired odometer connection may be required. Many vehicles have a Vehicle Speed Sensor (VSS) point that provides a pulse train from the transmission. Vehicles that do not have a VSS point with adequate signal characteristics require the installation of a transducer. It is the responsibility of the *installer and customer* to locate a VSS point or determine the appropriate location for a transducer. Your Customer Care representative may be able to assist in locating a suitable VSS point. He/She can also provide information on the type of signal that is required for accurate odometer tracking.

9.5 Emergency Switch (Optional)

The emergency switch is usually installed somewhere that would allow for covert operation. This location needs to be chosen by the customer prior to the start of installation. A switch can be provided if required. It is sometimes possible to use an existing switch already on the vehicle. Contact a Customer Care representative to discuss your specific requirements.

9.6 Switched Ignition Signal



It is important to utilize an unused ignition point. Connecting to an ignition point that is currently being used to switch other devices can cause improper operation of those devices.

The ignition sense input or Ranger V4.4 can be configured in two ways: standard ignition detection or alternator charge voltage detection. Ranger V4.4 can be configured through software to use the alternator charge voltage detection option. **In this case connect the ignition sense line to the battery, otherwise, use an ignition signal from**

the vehicle. The ignition sense line should be fused near the ignition signal source.

If the Ranger installation requires using an ignition point on the vehicle (i.e., standard ignition detection method), there are usually two options available to connect to an ignition sense line: auxiliary electrical panel or a fuse panel. If neither of these options are possible, then contact your Customer Care representative to discuss alternative ignition options.

It is highly preferable to find an ignition source that goes high only when the engine is actually on. If this source cannot be found, an ignition source that goes high only when the ignition is in the ON position is the next recommended source.

9.6.1 Auxiliary Electrical Panel (Preferred)

Many bus manufacturers include an auxiliary electrical panel for interfacing peripheral devices. The following graphic is an example of an auxiliary electrical panel in a Ford van:



Typically, one of these terminals is a switched ignition point. A ring terminal should be used when connecting to this type of ignition interface point. Ask the local maintenance personnel if you need assistance to find this panel.

9.6.2 Fuse Panel

An unused ignition activated position in the fuse panel is another option. This installation requires an Add-A-Circuit fuse holder as shown in the following graphic:



It is not acceptable to use a “fuse sleeve”.

10 Cabling

10.1 Routing

1. Use caution when routing wires between the passenger and engine compartments to avoid chafing or pinching the wires. Use grommets over any exposed sharp edges and strain reliefs to keep wires in place. Seal all holes to prevent moisture intrusion.
2. Route and secure all wiring under the hood away from mechanical hazards such as exhaust manifolds and moving parts.
3. Avoid running power leads in parallel with vehicle wiring over long distances.
4. If cabling is routed under the instrument panel, be sure that there is no interference with the proper operation of the foot controls.

10.2 Strain Relief

Ensure that there is no strain exerted on cable connectors where they enter the unit. Avoid placing the unit in a position where the cable connectors entering the back of the unit are under pressure or strain of any kind.

Ensure the power cable is fully inserted before replacing the cable cover. In the event of undue stress or strain on installed cables and connectors, permanent damage may occur that can weaken the connections. This may result in intermittent or complete loss of communication and or power. Always include strain relief every 2-3 feet on long cable runs.

As the Ranger unit can be tilted and rotated freely by the driver/user, cabling should be installed such that moving/adjusting the position of the unit does not exert any significant stress on the cables.

10.3 Labeling

It is important to always label cabling at connection points. This practice and using cables with consistent coloring will make maintenance easier.

10.4 Wire Types

The following are the minimum specifications for the hook-up wire that should be used during the installation process:

- Ranger Power and Ground
300V, 105°C PVC, 18AWG stranded
- Ignition
300V, 105°C PVC, 22AWG stranded
- Odometer Interface
300V, 105°C PVC, 22AWG stranded
- Ranger Inputs (example: Emergency Input)
300V, 105°C PVC, 22AWG stranded

10.5 Electrical Measurements

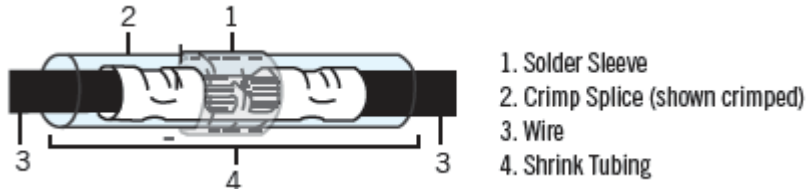
Always ensure that there is adequate voltage at the point where Ranger is being powered. Compare this voltage to the voltage at the battery. The two voltages should be almost the same or a different power point should be chosen closer to the battery.

10.6 Connection Types

10.6.1 Acceptable Connection Types



- Ring Terminals:
- Butt splices with self-contained solder and shrink tubing:



1. Solder Sleeve
2. Crimp Splice (shown crimped)
3. Wire
4. Shrink Tubing

- Soldered connections with shrink tubing

10.6.2 Unacceptable Connection Types



- T-Taps:



- Spade terminals:



- Marrettes:



- Blade connectors:

- Standard butt splices:

11 Antennas

11.1 Internal Antennas

Ranger V4.4 contains cellular, Wi-Fi, Bluetooth, and GPS antennas.

Cellular, Wi-Fi, and Bluetooth antennas are capable of radiating RF energy. Ranger units should be installed and operated with a minimum distance of 20 cm (8") between the radiator and the operator or any passengers.

The orientation and mounting location of Ranger V4.4 can have an effect on unit performance. To optimize GPS performance, mount the Ranger vertically with a clear view of the sky.

11.2 External Antennas

If desired, an external GPS antenna can be used with Ranger V4.4.

Specific antenna selection depends on the individual system setup. Contact your Customer Care representative for assistance in selecting an appropriate antenna.

Some important features to consider are:

- Compact construction
- Durability
- Weatherproofing
- Temperature stability
- Mode of Installation
- Compatibility with NAVSTAR and GLONASS systems
- QMA Plug to be compatible with Ranger V4.4

Ground plane style antennas are ideally mounted on the center of a metal vehicle roof. Glass mount antennas should be mounted away from metal objects.

When using an adhesive antenna, it is extremely important to make sure that the surface of the mounting location has been thoroughly cleaned. Use isopropyl alcohol to clean the surface just before securing the adhesive pad.

11.3 Cable Routing

The bend radius of the antenna coaxial cable depends on the type used. Apply bend radius per the antenna manufacturer's recommendations.

Avoid routing the antenna cable in parallel with the vehicle wiring over long distances.



Do not coil excess antenna cable slack.

11.3.1 Connectors

- QMA - The QMA connector is used for GPS and is a snap-on version of the SMA connector.

12 Ranger Specifications Summary

12.1 General Description

Trapeze Ranger V4.4 is a rugged, water-resistant^{1,2} WinCE computer designed for the harsh in-vehicle environment typically encountered in commercial fleets. Standard and optional features along with application software can be custom-designed to make it adaptable for a wide variety of fleet dispatch, navigation and vehicle telematics applications.

12.2 Standard Features

- Acceleration sensor
- Internal 72 Channel GNSS (GPS and GLONASS) Receiver
- 2 RS-232 Com Ports
- J1939
- J1708
- 10/100 Ethernet
- 2 USB Device Ports³
- Ignition detect input
- Emergency switch input
- Built in Odometer Signal Conditioner
- 4 Digital Input / Open Drain Output with software selectable pull-up or pull-down
- 6.5" TFT Color Display with Touchscreen with LED Backlight
- 6 Button Capacitive Touch Keypad with LED Backlight
- Integrated 3 Watt Stereo Speakers
- Integrated Microphone
- Externally accessible SD Card Socket
- Internal 8G solid state memory
- Tactile Wear Resistant Coating

12.3 Optional Features

- ISO 7811 Magnetic card reader
- NTSC/PAL Rear View Camera Input
- 802.11 b/g/n and Bluetooth
- External Active GNSS Antenna Input

12.4 Compliance and Testing

- FCC Type Approval and FCC Class B Part 15
- ISED Radio Type Approval
- UL60950-1:2003 R7.06, CAN/CSA-C22.2 No. 60950-1-03 Safety of information Technology Equipment
- ISO 7637-1 Load Dump Transient
Designed for ISO 7637-1 Load Dump Transient
- MIL STD 810F: General Vibration
- MIL STD 810F: Shock
- IP54: Environmental, Dust and Water exposure^{1, 2}
- SAE J1455

12.5 Specifications

- Supply Voltage

Typical	12 V or 24V
Min	6 V
Max	32 V

- Current Consumption

Input Voltage (V)	Current Draw (mA)		
	Standby	Idle ⁴	Typical ⁵
9	68	360	965
13.8	50	250	645
24	39	160	405
30	19	110	260

Maximum⁶ 3.0 A

- Operating Temperature
Min -30° C Max 65° C
- Storage Temperature
Min -30° C Max 70° C



Operation at temperatures outside these ranges for extended periods of time is not recommended.

- Size
8.25" x 2.0" x 5.7"
210mm x 57mm x 146mm
- Weight
2.0 lbs / 0.9 kg
- 5% - 95% relative humidity non-condensing

12.5.1 Footnotes

- Unit is IP54 rated for water.
- Ranger unit may not be water-resistant when some of the options are specified.
- USB 2.0 High Speed; one port is for maintenance.
- When display is off, the unit is idle without modem active.
- Unit Idle with full backlight with GPS, Wi-Fi and Bluetooth and Modem idle.
- This is an absolute maximum that includes an installed modem and all peripheral devices. Actual current draw depends on system design.



Trapeze reserves the right to change circuitry and specifications without notice at any time. Please ensure that you have the most recent version of this document.

Only use Trapeze approved cables for installation purposes. Refer to cable section of the Hardware Installation Manual for additional information.

13 Compliance and Testing

UL60950-1:2003 R7.06, CAN/CSA-C22.2 No. 60950-1-03 SAFETY OF INFORMATION TECHNOLOGY EQUIPMENT

Certificate No. CU 72152397

ISO 7637-1 Load Dump Transient

Designed for ISO 7637-1 Load Dump Transient

MIL STD 810F: General Vibration

Tested to MIL-STD-810F Vibration Test Method 514.5 Procedure I: General Vibration, Category 20 Ground Vehicles.

Highway Vehicle Endurance Testing

Each axis was exposed to 1 hour of vibration according to Figure 514.5C-1 U.S. Highway Truck Vibration Exposure Levels. This is an accelerated fatigue test meant to test the unit's life cycle. The unit was functionally tested before and after the test.

MIL STD 810F: Shock Test

Tested to MIL-STD-810F Shock Test Method 516.5 Procedure I: Functional Shock. Functional Shock was performed on the vertical, transverse, and longitudinal axes with a pulse of 40gs. The tests were performed to ensure the unit stays intact during vehicle operation.

IEC 60529 - IP54

Tested to IEC 60529 IP54 for protection against ingress of water with harmful effects splashing. Excludes units equipped with a magnetic card reader.

SAE J1455

Designed to meet SAE J1455 guidelines for instrument panel temperatures.

14 Appendix A: Regulatory Statements

14.1 FCC Class B Part 15

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received including interference that may cause undesired operation.



This equipment has been tested and found to comply with the limits for a Class B 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. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Notice:

Changes or modifications to this product not expressly authorized by Trapeze may void the FCC authorization to operate this equipment.

14.2 Industry Canada Statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. this device may not cause interference, and
2. this device must accept any interference, including ... interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

15 Appendix B: RF Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and the nearest human body.

16 Appendix C: Required Regulatory and Wireless Carrier Approvals

Ranger 4.4, Model R44-N11xx-xx, for use on PTCRB Member Carrier Networks

FCC ID: RZ3RAN44N1

IC ID: 2234A-RAN44N1

Approvals: FCC, IC, PTCRB, Individual Carriers

Ranger 4.4, Model R44-N10xx-xx, for use on PTCRB Member Carrier Networks

Contains FCC ID: RI7LE910NAV2

Contains IC ID: 2234A-LE910NAV2

Approvals: PTCRB, Individual Carriers

Ranger 4.4, Model R44-V11xx-xx, for use on the Verizon Wireless Network

FCC ID RZ3RAN44V1

IC ID 2234A- RAN44V1

Approvals: FCC, IC, Verizon

Ranger 4.4, Model R44-V10xx-xx, for use on the Verizon Wireless Network

Contains FCC ID: RI7LE910SVV2

Contains IC ID: 2234A-LE910SVV2

Approvals: Verizon