

The

# TITAN<sup>RT</sup>



**For Farm Works Software<sup>®</sup>**

*Product Guide for the Rugged Tablet Computer (Rev. 1/6/06)*



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# Product Information

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Computers from Farm Works Software (the Product, device, Titan RT, rugged tablet computer, or tablet computer) are warranted against defects in materials and workmanship under normal use, for a period of one (1) year from the date of purchase. This warranty does not apply to units that have been abused or stressed beyond the published environmental and electrical specifications. In the event of a product failure due to materials or workmanship, Farm Works Software will repair or replace the defective product. This warranty is limited to the original purchase price of the unit and does not cover installation, labor, or any other contingent costs. For warranty service, return the defective product to Farm Works Software, shipping prepaid, for prompt repair or replacement. The foregoing sets forth the full extent warranties concerning the Product of Farm Works Software. Repair or replacement at the option of Farm Works Software is the exclusive remedy.

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To place an order for additional Titan RT computers, optional battery packs, supplementary USB drives, and other spare or replacement tablet computer hardware accessories, or to purchase additional Farm Works Software applications or licenses for such, do so online at [www.farmworks.com](http://www.farmworks.com), or call toll free **1-800-225-2848.**

## Audience

This manual provides a reference for the use and care of the Titan RT (rugged tablet) computer. The information it provides is intended for two audiences: (1) Titan RT end users, and (2) qualified electrical or Information Technology personnel familiar with installing, configuring, and maintaining field mapping and record keeping computing devices, hardware peripherals and software.

## Credits

Technical Writer, Desktop Publisher ..... Christopher Irwin

Editors ..... R. Scott Nusbaum, Deb Hurraw

Photographer, Graphic Artist ..... Jeff Geiger

Technical Consultants ..... Anthony Bowers, Teri McPheeters

# Overview of the Titan RT

Whether you are planting, spraying, or soil sampling, your farming operation can be hard on the computing device you bring to the field. The rough terrain that you drive over can shake up a delicate handheld computer, causing it to vibrate loose from its mount so it is lost or damaged.

At Farm Works Software, we know that you cannot afford to lose valuable time and money that results from a damaged personal data assistant (PDA), and the loss of important data you have taken hours to record. That is why we offer a nearly indestructible rugged tablet computer called the Titan RT.

The Titan RT is so tough you may drop it, step on it, dance on it or even drive your tractor over it and it will still keep working. The makers of the Titan RT stress tested this rugged tablet computer by actually parking a large pickup truck on top of it! When they moved the truck, there was no damage to the device at all. It's truly able to take the beating that a delicate PDA could never endure, and still protect your vital farm maps, global positioning system (GPS) data, and other critical information about your farming enterprise. The Titan RT can withstand nearly anything nature throws at it: Heat, cold, rain, dust and mud—almost nothing can stop this rugged tablet computer! (See *Maintenance* later in this product guide.)

## Features of the Titan RT

Large 8.4" super video graphics array (SVGA) 800x600 & 24-Bit Color Liquid Crystal Display (LCD): Color thin film transistor (CTFT) touchscreen for ease of viewing in daylight; 400 nit brightness Cold Cathode Florescent Lamp (CCFL); sunlight readable; eight-wire resistive (stable over a wide temperature range)

Ruggedness: Industrial strength substrate to pass the ATEX (from the French – ATmospheres Explosibles) Directive

External Power: Provided by a vehicle battery via the Farm Works Software supplied 12 volt AC adapter

Long Battery Life of the Optional Battery Pack: Eight hours at max power consumption as shipped; 4000 mAh at 11.1 volts

Easy Battery Recharging of the Optional Battery Pack: Via a Farm Works Software supplied 15 volt AC adapter (which is shipped with the optional battery pack)

Dimensions: 10.0" x 8.75" x 1.75" max

Weight: 3.75 lbs. (with optional battery pack installed)

Operating System: Windows CE .NET (Version 4.20)

Installed Services: FTP (File Transfer Protocol) server, Microsoft Windows networking, SNTP (Simple Network Time Protocol) client

Installed Components: MFC (Microsoft Foundation Classes), .NET Compact Framework, scripting support (JavaScript and VB Script)

Installed Support: 802.11x; audio speakers and optional headphone support; GPRS/CDMA (General Packet Radio Service/Code-Division Multiple Access) wireless cards (cellular); Ethernet bridge; serial bridge; USB 1.1 (Universal Serial Bus);

Installed Applications: Command Prompt, Control Panel and applets, Farm Site Mate, Farm Trac Mate, Guide Mate, Pocket Internet Explorer, Input Panel (Onscreen Keyboard), Microsoft Excel Viewer, Microsoft Image Viewer, Microsoft PDF Viewer, Microsoft PowerPoint Viewer, Microsoft Remote Access Control, Microsoft Word Viewer, Microsoft WordPad, TitanSync synchronization utility, Windows Explorer, Windows games, Windows Media Player

Processor: Intel XScale 400 MHz (megahertz)

Internal, volatile Random Access Memory (RAM) (i.e., main memory): 128 MB

Internal, Nonvolatile Flash Memory (i.e., Storage Area): 64 MB

Expandable, Nonvolatile Flash Memory (i.e., Storage Card): 128 MB  
Type I CompactFlash (CF) memory card with adapter installed in the Type II PCMCIA (PC Card) slot of the tablet computer

Wired Connections on tablet computer: One 10/100 Ethernet network port (RJ-45); two USB 1.1 (Universal Serial Bus) ports (type A receptacles for the Farm Works USB drive, and other USB-compatible storage devices or peripherals); three serial communication (DB-9) ports to connect to GPS receivers, variable rate controllers and other serial devices.

Audio Out: Two internal speakers, one 3.5 mm stereo headset jack

LEDs: Two indicator lights on the face of unit (one to indicated the power status and one for proprietary software)

Stylus: One for use with the tablet computer's touchscreen

Carrying Handle (Strap): Shipped with the tablet computer (using the strap is optional)

**Note:** For information on the ATEX Directive and other standards met by the Titan RT, see *Safe Use of the Titan RT*.

## Typical Uses

The Titan RT has a super-wide display screen. The nearly eight-and-a-half inch wide display of this rugged tablet computer is easy to make out while you are at the wheel, no matter how bumpy the ride.

This handy tablet computer gives you a convenient touchscreen so you may enter information easily. Its built-in serial ports support a wide-range of GPS receivers and variable rate controllers, and its mounting accessories make it simple to affix to just about any vehicle cab.

The tablet computer uses the latest technology and software available from Farm Works Software to assist you in all of your field scouting, boundary mapping and applications. Its versatility allows modern producers to use their existing GPS receiver, along with the Site Mate program (and other Farm Works Mate programs), to perform a wide range of useful and timesaving tasks in the field.

## Farm Works Software for the Titan RT

Farm Works Software installs the Farm Site Mate Basic program on every Titan RT. Farm Site Mate lets you use a GPS receiver with the tablet computer for site-specific field mapping. For a reasonable price, you may purchase a CD key to upgrade the program to Farm Site Mate Scouting or Farm Site Mate VRA. Whether mapping field boundaries, scouting problem areas, taking soil samples, or monitoring variable rate, Farm Works Software offers just the program you need to get the job done right.

Other programs available from Farm Works Software for your Titan RT include Farm Trac Mate and Guide Mate. Farm Trac Mate lets you enter field data when it is convenient for you—while you are still in the field. It takes the hassle out of keeping track of your records and gives you more time on the farm and less time in the office. Guide Mate, the guidance module of Site Mate, adds an on-screen light-bar to keep you on a nearly perfectly straight path. The Guide Mate light-bar is easy to follow, and the software integrates fully with Site Mate so you may quickly access maps of your field while you are planting, spraying, or harvesting.

**Note:** Like Farm Site Mate Basic, Farm Site Mate Scouting, Farm Site Mate VRA, Trac Mate and Guide Mate are all preinstalled on the Titan RT, however, these programs remain disabled until valid CD keys and registration numbers are entered in the Registration dialog box (see Setting Up the Titan RT for information on registering the software). To purchase a CD key number and receive a registration number for these programs, call **1-800-225-2848**, or do so online at **[www.farmworks.com](http://www.farmworks.com)**.

Farm Works Software also offers a wide range of programs for the desktop or laptop computer in your office, including Farm Trac+, Farm Funds, Farm Stock, Farm Site, Site Pro and Stock Mate. For more information regarding Farm Works Software programs, or to purchase additional Farm Works Software applications, please call **1-800-225-2848** to speak to a member of our helpful sales team.



# Hardware Accessories for the Titan RT

This section provides information regarding the hardware accessories for your Titan RT. To order additional or replacement accessories, please call our toll free number **1-800-225-2848** or visit us on the World Wide Web at **www.farmworks.com**.

## AC Adapter

Farm Works Software shipped an AC adapter is shipped with your Titan RT (see Figure 1). The AC adapter supplies power to the tablet computer, or recharges the optional battery pack (if one is installed). The adapter converts 120 volts alternating current to 12 or 15 volts direct current, and is electrically compatible with the device. You should use only AC adapters supplied by Farm Works Software and set to a voltage between 12 and 15 volts with the tablet computer. For instructions on using the AC adapter, see *Setting Up the Titan RT*.

 **WARNING:** Use only a Farm Works Software-supplied AC adapter with the Titan RT. Use of another AC adapter may cause a fire or an explosion. Verify that the adapter is set to a voltage that is *not* more than 15 volts before connecting it to the tablet computer.



Figure 1. AC Adapter

 **WARNING:** The AC adapter is not waterproof. You should *never* immerse it in water, or you may damage the Titan RT or risk electric shock.

## Battery Pack (Optional)

Using the Lithium Ion battery pack for the Titan RT is optional, and is an additional accessory that you may purchase separately. The proprietary battery pack (see Figure 2), which is only available from Farm Works Software, allows you to use the tablet computer without an exterior power source. It holds a charge for a maximum of eight hours of continuous use, after which you must completely recharge it before it may supply up to eight more hours of uninterrupted use.

Farm Works Software ships the Titan RT battery packs with approximately a 50% charge. A spare battery pack, stored separately (i.e., not installed in a tablet computer), should be usable for up to one year. You should fully charge the battery pack before using it (see *Using the Optional Battery Pack*).

**IMPORTANT:** If Titan RT batteries are stored fully charged, or fully discharged, the capacity of the battery packs may be adversely affected. Store battery packs charged to about half-capacity and remove them from the tablet computer before putting the tablet computer into storage.



Figure 2. Optional Lithium Ion Battery Pack

See the section *Using the Optional Battery Pack* for information on battery pack installation, removal and storage.

## Mounting Bracket

The mounting bracket is made to be affixed to the inside of the cab of your tractor, combine, or other vehicle, and holds the Titan RT firmly in place so that you may use the device while operating the

vehicle. The ball joint mounts of the mounting bracket (see Figure 3) let you adjust the position of the tablet computer to just the right height and angle you desire. For instructions on assembling the mounting bracket and attaching the Titan RT to it, see the section *Setting Up the Titan RT* later in this product guide.



Figure 3. Assembled Mounting Bracket

## CompactFlash (CF) Card with Adapter

The CompactFlash (CF) storage card installed in your Titan RT is *not* a removable storage device, as the USB drive. The CF storage card is a flash memory card that interacts with the tablet computer like a hard drive, but without moving parts. It is a semi-permanent location for your Farm Works Software program data (such as that created by Site Mate Basic, which is preinstalled on the Titan RT, and other Farm Works software applications that you purchase for the tablet computer).



**CAUTION:** YOU SHOULD NOT USE THE TITAN RT WITH THE CF MEMORY CARD REMOVED. Removing the card may result in a loss of data, as the Site Mate program that Farm Works Software preinstalled on your Titan RT saves important files to the CF memory card.

If you wish to use a removable storage device, we strongly recommend you utilize the Farm Works Software USB drive, which Farm Works Software shipped with your tablet computer (see *USB Drive and Accessories* below).



Figure 4. CF Card and Adapter in the Card Slot

The Type I CF memory card has an adapter that enables it to fit in the Type II PCMCIA (PC Card) slot of the Titan RT. The slot is equipped with a hold-down bar that keeps installed cards solidly in place and unaffected by vibrations or rough handling (see Figure 4). For information on installing a new CF card and adapter, see *Storing Data*.

**Note:** When replacing the CF storage card, you must reinstall the PC Card slot cover to meet the IP67 and/or NEMA 4 seal ratings.

## USB Drive and Accessories

Farm Works Software ships a USB drive (also called a flash drive, thumb drive, or key chain drive) with your Titan RT (see Figure 5). The Farm Works Software USB drive is the primary removable storage device. Unlike the CF storage card, which should remain in the Titan RT, you may safely insert and remove the USB drive from the USB port of the tablet computer while it is on.

You may save your data, such as log files, maps and variable rate control data, on the USB drive, remove it from the Titan RT, and bring it with you back to your office to transfer the files to your desktop or laptop computer, there. For information regarding the use of the USB drive, see *Storing Data*.



Figure 5. USB Drive and Accessories (clockwise, top to bottom: USB Cable, Carrying Strap, USB Drive, and Windows 98 Driver CD)

The Farm Works Software USB drive is also a convenient way to import files into other software applications installed on your desktop, laptop, or other computer, such as the popular Farm Works Software office programs—Farm Trac+, Farm Funds, Farm Site and Site Pro. For more information regarding these, and other, Farm Works Software applications, please call to speak to one of our helpful sales team members by dialing **1-800-225-2848**, or watch demonstrations of the programs at our website at [www.farmworks.com/demos/](http://www.farmworks.com/demos/).

### ***USB Extension Cable and USB Driver CD***

The USB cable (see Figure 5) shipped with the Titan RT is a standard Universal Serial Bus cable with a type A male connector on one end and a type B male connector on the other end. The type A connector connects to the tablet computer; the type B connector attaches to the USB drive, or to another peripheral device.

If your desktop, laptop, or other computer is currently using Microsoft Windows 98 or Windows 98 Second Edition (SE), you may need to use the USB Flash Drive CD (see Figure 5) to install software drivers to your desktop or laptop computer before using the USB drive with that computer. You do not need to install drivers from the CD if your desktop or laptop computer is running Windows 2000 Professional, Windows Millennium Edition (ME), Windows XP Home Edition, or Windows XP Professional.

**Note:** The USB drive is not for Windows for Workgroups 3.11, Windows NT, or Windows 95, as these operating systems do not have native support for Universal Serial Bus devices, and the USB Flash Drive driver CD does not have drivers compatible with these operating systems.

## **Stylus**

The Titan RT's simple plastic stylus looks like a pen, but is for resistive touchscreens. You may not always need to use the stylus, however, because some applications provide large buttons that you can select by touching the touchscreen with your finger. Do *not* use a writing pen, or other sharp object, instead of the stylus, as you may scratch the touchscreen. For more information regarding the use of the stylus, see *Setting Up the Titan RT*.

**Note:** Before using the stylus, you should remove the protective plastic cover that the manufacturer affixed to the touchscreen of the Titan RT to protect it during shipping.

## Carrying Strap (Optional)

You may attach the carrying strap (or handle) that Farm Works Software shipped with your Titan RT may be attached to the side of the tablet computer's housing when the device is not fastened to the mounting bracket (see *Mounting Bracket* above). The carrying strap makes the tablet computer easier to carry should you desire to use it as a portable computer instead of mounting it to a vehicle.

Whether or not you use the strap is at your discretion. You may attach it to the side of the Titan RT using the provided screws (see the photograph on the front cover of this product guide). If you decide to fasten the tablet computer to the mounting bracket, you will first have to remove the strap.

**Note:** The carrying strap also has a convenient sleeve to hold the stylus when it is not in use.

# Setting Up the Titan RT

Farm Works Software typically ships the Titan RT with a mounting bracket, which is unassembled. If you also purchased the optional battery pack, you will have to install it in the tablet computer. Thus, some initial assembly is required.

**Note:** If you purchased the optional battery pack and intend to use the mounting bracket, you should first install the battery pack before fastening the mounting bracket to the Titan RT. Follow the steps in *Using the Optional Battery Pack*, and then return to this chapter and follow the steps below.

## Fastening the Mounting Bracket

The first step to setting up the Titan RT in your combine, tractor, or other vehicle is to assemble the mounting bracket, mount it inside the cab of the vehicle, and attach the tablet computer to the mounting bracket. The mounting bracket holds the tablet computer securely in place while the vehicle is moving, and you may adjust it to the height and angle that makes it easiest to see and use.

The bracket assembly kit included with your Titan RT has eight screws, four bolts, four nuts, four washers, and four parts that make up the bracket (the mounting frame, two ball joint mounts and the bracket arm). To assemble the mounting bracket, first attach one of the ball joint mounts to your vehicle according to the instructions the dealer of the vehicle provides. Then, attach the other ball joint mount to the frame using four bolts and nuts (see Figure 6).



Figure 6. Attaching the Ball Joint Mount to the Mounting Frame

Next, attach the mounting frame to the back of the Titan RT using four screws and washers to secure it to the sides of the tablet

computer. The screws should hold the Titan RT firmly in to the frame to minimize vibration (see Figure 7).

 **Caution:** Do not use screws that are longer than the ones supplied with the Titan RT, as you may crack the housing of the tablet computer.



*Figure 7. Attaching the Mounting Frame to the Titan RT*

Finally, place the ball joint mounts into the bracket arm (if the ball joint mounts will not easily fit into the arm, adjust the large thumbscrew on the arm to widen the openings). Once the ball joints are securely in place, tighten the arm's grip on the ball joint mounts by turning the large thumbscrew clockwise until it is tight.



*Figure 8. Mounting Bracket (Fully Assembled)*

The bracket arm's grip should be firm enough to keep the mounting frame from jarring loose, but not so tight that you cannot adjust the position of the Titan RT (see Figure 8). See *Safe Use of the Titan RT* for information on how to best position the tablet computer. Once you have the Titan RT correctly mounted to the vehicle, you may proceed to the next step.

## Attaching Serial Devices

The Titan RT has three serial communication ports that you may use to connect to a GPS (i.e., global positioning system) receiver, a yield monitor, and another external device that has a nine-pin male, DB-9 serial connector (see Figure 9 below). Before you turn on your Titan RT, be sure to attach each device to the correct serial port. Insert each female DB-9 connector firmly, but gently, into the ports, and then turn the thumbscrews until the connectors are securely in place. Once you correctly attach the devices are to the proper serial ports, you may proceed to the next step.



Figure 9. Serial Communication Ports on the Titan RT

**CAUTION:** Do *not* connect or disconnect any devices to the serial ports while the Titan RT is connected to the AC adapter or using a battery pack. Doing so might damage the tablet computer, the serial cables, or both.

If you attach a GPS receiver to the Titan RT, Farm Works Software recommends you use the middle serial port (the one labeled COMM 2). You may connect a yield monitor, variable rate controller, or other serial device to either of the other ports (the ones labeled COMM 1 and COMM 3).

**CAUTION:** You should connect a GPS receiver to the serial port of the Titan RT *before* you connect the AC adapter. Connecting a device to a serial port while the Titan RT is on might damage the serial port. For instructions on connecting and positioning a GPS receiver, see the section at the end of this chapter.

## Connecting the AC Adapter

The AC adapter shipped with the Titan RT (see Figure 1) allows the device to operate using the electrical current of the battery of your combine, tractor, or other vehicle. One connector of the AC adapter

attaches to the power port in the bottom of the tablet computer and the other plugs into the electric cigarette lighter of the vehicle. The AC adapter shipped with your Titan RT is electrically compatible with the device, and set to a voltage of 12 volts DC (if no battery pack is installed) or 15 volts DC (if a battery pack is installed in the tablet computer).

 **WARNING:** Use only a Farm Works Software-supplied AC adapter with the Titan RT. Use of another AC adapter may cause a fire or an explosion. Verify the adapter is set to *not more* than 15 volts before connecting it to the tablet computer.

To attach the AC adapter to the Titan RT, follow these instructions: First, verify that the adapter is set to the correct voltage. Second, attach the DC connector to the port labeled Power in the bottom of the tablet computer (see Figure 1) and use a screwdriver to secure the screws. Third, plug the other end of the AC adapter into the cigarette lighter of the vehicle. The power indicator light (see Figure 15) will glow green or red to indicate the adapter is supplying power to the device. Once you have properly connected the AC adapter, you may proceed to the next step, below.

 **WARNING:** The AC adapter is not waterproof and you should *never* immerse it in water. Doing so may damage the Titan RT or cause an electrical shock.

## Turning On the Titan RT

Turn on the Titan RT by pressing the power button located in the upper right-hand side of the its housing. When you first power on your tablet computer, it will take approximately 30 seconds for the device to cold boot to the Windows CE .NET desktop.

### ***Power Button Functionality***

Briefly pressing the power button for *less than* five seconds turns on the Titan RT or restores full screen activity, or else it places the tablet computer in suspend mode where data is preserved in random access memory (RAM) pending return to full system use. Pressing the power button for *more than* five seconds performs a hard reset of the tablet computer. For information on resetting, see *Resetting the Titan RT* below.

 **CAUTION:** Performing a hard reset erases all data in volatile RAM. However, information that you have already saved to nonvolatile memory (the internal flash memory storage or CF storage card) will likely *not* be lost.

### ***Power States***

The Titan RT can be in one of several power states induced either by user action or user inaction. Table 1 lists the five states in order of decreasing power consumption.

**Table 1 - Titan RT Power States**

<b><u>Power State</u></b>	<b><u>Description</u></b>	<b><u>Initiation of State</u></b>	<b><u>Move to On</u></b>	<b><u>Move to Suspend</u></b>
<b>ON</b> (Full Run Mode)	Fully on, all processes enabled.	Power button pressed briefly (less than five seconds); or, while in suspend mode, screen is tapped.	N/A	Press the power button briefly (less than five seconds) or tap Start   Suspend.
<b>DIM BACKLIGHT</b> (Titan RT in Full Run Mode)	Dim backlight; system processes ongoing.	No touchscreen, button, or keypad activity for a user-set period.	Tap the touchscreen to return to on.	Press the Power button briefly (less than five seconds) to suspend.
<b>DISPLAY OFF</b> (Titan RT in Idle Mode)	No backlight; no system processes ongoing.	No serial port or card slot activity for user-set period, or battery voltage drops below a threshold set in the Battery applet of the Control Panel.	Press the Power button briefly to return to on.	Press Power button briefly (less than five seconds) to return to On. Press Power briefly a second to suspend.
<b>SUSPEND</b> (Titan RT in Sleep Mode)	No backlight; all internal devices shut down or in low-power mode.	Choosing Start   Suspend; power pressed; no system activity for user-set period; or voltage drops below a threshold of the Battery applet of the Control Panel.	Press Power briefly (less than five seconds) to return to on.	N/A
<b>RESET</b> (Titan RT in the Process of a Hard Reset)	Titan RT reset to default settings; data not saved to storage area or card is lost.	AC adapter disconnected; battery died or was removed; user pressed the power button for more than five seconds.	Wait 60 seconds for the reset to complete and return to on.	Once the reset completes, press the power button briefly (less than five seconds) to suspend.

### ***Instant On – Instant Off***

The Titan RT features Instant On and Instant Off. It instantly "wakes" when you touch the touchscreen or briefly press the power button for less than five seconds. It instantly "sleeps" when you briefly press the power button once again. The Instant Off feature puts the tablet computer into Suspend mode, which is a low-power mode described in Table 1 below.

### ***Resetting the Titan RT***

On the rare occasion when the embedded Windows CE .NET operating system hangs (or fails to respond) you may find the only way to restore normal operation is to reset the device. To perform a reset, press the power button for *more than five seconds*. Resetting will remove all data from volatile random access memory (RAM) just as though you have removed the battery and AC adapter. You will likely lose all data for any open Site Mate projects, or other Farm Works Software projects that you have not saved. Projects saved to the CF storage card or the internal flash memory, storage area before the reset procedure will *not* be lost.

## Aligning the Touchscreen

Farm Works Software ships the Titan RT with the touchscreen aligned, but you may need to recalibrate the touchscreen, which realigns the cursor on the display. Use a stylus to recalibrate.

### Using the Stylus

Shaped like a pen, you may use the stylus like a mouse on a desktop computer to navigate menus and select items on the Titan RT touchscreen.

- **Tapping:** Tapping the stylus is the equivalent of using your mouse to click on an item. Tap the touchscreen once with the stylus to select an item. Tap two times quickly (double tap) to open an item.
- **Dragging:** Place the stylus on the touchscreen and drag it across the screen to select items, or move program windows and scroll bars. Drag the stylus down a list to select multiple items.

Recalibration realigns the cursor on the touchscreen with the tip of your stylus. If, and when, you need to realign the touchscreen, follow these steps:

1. Open the Stylus Properties dialog box by tapping Start | Settings | Control Panel, and double-tapping the Stylus applet.
2. Tap the Calibration tab in the Stylus Properties dialog box.
3. Tap the Recalibrate button.
4. In the Recalibration window (see Figure 10), tap the centers of target locations with the tip of the stylus. The target moves when you have tapped its center. If you miss a target, keep the stylus on the screen and slide it over to the target center before lifting the stylus.



Figure 10. Windows CE .NET Recalibrate Window

**Note:** To cancel out of the Recalibrate program, tap the screen in any spot not occupied by a target.

After successfully tapping the target centers, the Recalibrate utility displays a message indicating that it has established new calibration settings. To accept the new calibration settings, tap anywhere on the screen to exit the Recalibrate program, then tap the OK button on the Stylus Properties dialog box. To keep the old settings, tap the touchscreen to exit the Recalibrate program, and then tap Close instead of OK. Once you have completed the recalibration, you may proceed to the next, below.

## Setting the Date and Time

Next, set the date and time. Tap Start | Settings | Control Panel, and double-tap the Date/Time applet to display the Date/Time Properties dialog box. You should set not only the date and the time, but also the time zone for your location. Once you have configured the proper date and time, proceed to the next step.

## Registering the Site Mate Program

Before you use the preinstalled Site Mate program, you should register the software. To do this, start the program and the Register dialog box appears (see Figure 11). Use the Input Panel (see *Using the Titan RT*) to enter the 11-digit CD key number, which Farm Works Software shipped with the Titan RT, in the CD Key textboxes of the Register dialog box. Then, enter the registration number in the Registration # textbox of the dialog box. You may obtain a registration number online at [www.farmworks.com/register](http://www.farmworks.com/register) or by calling toll free **1-800-225-2848**. *You will need to provide the machine ID number to obtain the registration number (see below).*

Your Titan RT purchase includes a CD key number for *one* Site Mate Basic program. The basic Site Mate program does *not* include all the features of Site Mate Scouting or Site Mate VRA. The key number you enter determines what features of the program are enabled. If you want to use Site Mate Scouting or Site Mate VRA on the Titan RT, you must purchase a different CD key number to enter before you obtain a registration number for the software.

**Note:** If you do not wish to purchase a second CD key, and you already have the latest version (version 11) of Site Mate Scouting or Site Mate VRA installed on another computer, you may do this: (1) *Uninstall* the Site Mate program from the other computer using the Windows CE Remove Programs applet in the System window. (2) Use the CD key for that program to register the Site Mate software installed on the Titan RT. See the end user license agreement of your Farm Works Software applications for more information regarding legal use of the software.



Figure 11. Site Mate Registration Dialog Box

Verify the CD keys and registration numbers are correct and tap OK.

**Note:** Guide Mate and Trac Mate are also preinstalled on the Titan RT, but are disabled until you enter a valid CD key number and registration number for each. To purchase a CD key number for Guide Mate and Trac Mate call 1-800-225-2848.

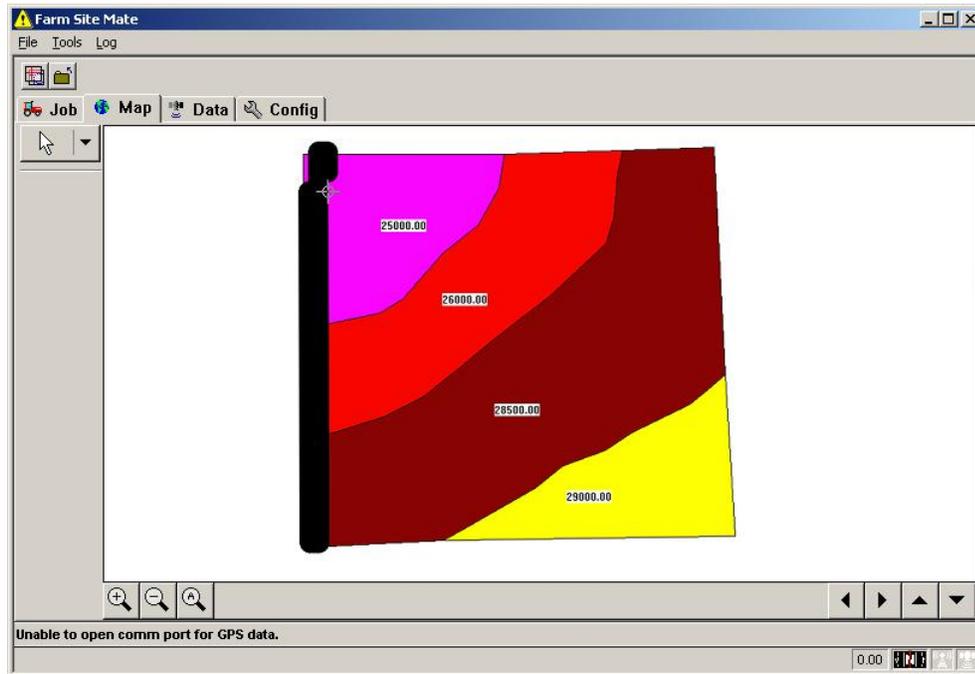


Figure 12. Site Mate Program on Your Titan RT

Once you enter the correct CD key and registration numbers, the Site Mate program launches so you may begin using the software (see Figure 12).

## Saving the Site Mate Settings

Once you have your Site Mate (and possibly other Farm Works Mate programs) configured with the correct settings for your GPS receiver or variable rate controller, you should save your settings to the CF storage card. Doing so will protect these settings from being erased should your Titan RT become disconnected from the AC adapter or the battery pack become discharged. To do this:

1. Open the Site Mate program.
2. Tap the File menu and select the Save Settings To Card menu item. A dialog box appears.
3. In the dialog box, make sure you select Storage Card in the Card Name list box, and then tap Save to save the settings to the card.
4. A message box indicates when the program has successfully exported the settings to the storage card. Tap OK to close the message box.
5. Tap Close to close the dialog box.

You have now saved the settings to the CF storage card and the program will reconfigure them after the tablet computer loses all power and then has power restored.

## Setting Up a GPS Receiver

Before you connect the AC adapter to the Titan RT and power it on, you should connect a global positioning system (GPS) receiver to the middle serial communications port on the bottom of the Titan RT. This nine-pin, male connector is labeled COMM 2.

**Note:** For more information on connecting devices to the serial communications ports of the Titan RT, see the section of this chapter called *Attaching Serial Devices*.

The position of your GPS receiver is important to ensure there is no interference with the GPS receiver. Placing the receiver too close to the Titan RT may cause interference. Typically mounting the receiver a minimum of three to five feet from the Titan RT will eliminate any interference. The preferred position of the antenna is to the right or left of the Titan RT, as opposed to in front or behind the Titan RT. This assures a clear view of the sky.

**Note:** If you need advice on what GPS receivers work best with the Titan RT, please call to speak to one of the knowledgeable and helpful Farm Works Software sales team members at **1-800-225-2848**.



# Using the Optional Battery Pack

The Titan RT does not require a battery for normal use. The AC adapter, connected to an external power source, is all you need to power the device. Even if the AC adapter is disconnected, data saved to the CF storage card installed (such as important farm project files of the Site Mate program) should *not* be lost, as this storage area is nonvolatile.

For these reasons, use of the Lithium Ion battery pack is not required. Some rationales for using the optional battery pack include:

- You want a backup to prevent the loss of data that you have *not* saved to flash memory, should you inadvertently disconnect the AC adapter while logging data.
- You want to use the Titan RT outside of the cab of your tractor or combine.
- You do *not* want to use your tractor or combine battery as the power source for the tablet computer.
- You want to use your tablet computer, both in the field and at the office, without an AC adapter.

**Note:** Farm Works Software ships an optional carrying handle with the Titan RT. You may attach this handle to the tablet computer with the two provided bolts to make carrying the device easier. Use of the carrying handle is not obligatory.

## Installing the Battery Pack

The Titan RT's proprietary Lithium Ion battery pack provides 4000 mAH at a nominal 11.1 volts and is available only from Farm Works Software. To install the battery pack:

1. Remove the protective cover from the battery pack bay by loosening the slotted screws with a screwdriver or coin (see Figure 13 below).
2. Insert the battery pack into the battery bay at the bottom rear of the tablet computer, ensuring that the alignment tabs on the battery pack fit into the alignment slot on the top of the battery bay, and that you have firmly seated it.
3. Using a screwdriver, dime, or penny, install the two slotted screws designed to secure the battery pack in the two screw holes in the bottom of the battery pack.



Figure 13. Installing the Optional Battery Pack

## Charging the Battery Pack

Before using the Titan RT with the optional battery pack installed, charge the battery for at least two hours with the AC adapter. The AC adapter shipped with the battery pack you purchase separately provides 15 volts DC to adequately charge the battery.

**WARNING:** Using an AC adapter with a voltage setting of more than 15 volts of DC may damage the battery pack or the Titan RT and even cause a fire or explosion. *Do NOT use an AC adapter other than one supplied by Farm Works Software or by an authorized Farm Works Software dealer.* In addition, the AC adapter is not waterproof and you should *never* immerse it in water.

The Titan RT, with a fully charged, new battery pack, that has continuous screen activity and the backlight at default brightness, will have a battery life of up to a full eight hours. However, typical use of the tablet computer will not require you to power the tablet computer for a continuous eight hours. Usually the device will enter suspend mode (see *Setting Up the Titan RT* for instructions on how to configure this feature).

**Note:** The Titan RT battery pack charges only at battery temperatures of 0°C - 45°C (32°F - 113°F). If the tablet computer has been running on battery power for some time, the battery may be up to 10° warmer than the ambient temperature. Thus, charging a warm battery may only be possible at ambient temperatures ranging from about -10°C to 35°C (14°F - 95°F). Charging the tablet computer battery at room temperature will extend the battery's life.

In suspend mode, the tablet computer appears to be off, but when the power button is pressed, it instantly "wakes" and allows work to continue from the previous state of the unit. (For example, a Titan RT with a new and fully-charged battery pack and no peripherals attached, which is set to the default brightness and used 15 minutes every hour and suspended for 45 minutes every hour, may last for up to 28 hours without recharging the battery.)

**IMPORTANT:** As batteries are charged and discharged, they naturally lose capacity. After about 300 full charges and discharges at room temperature, batteries may have about 75% of their initial capacity available. When a battery pack's capacity drops below your needs, you should replace it. If you do *not* fully discharge the batteries before recharging them, they will retain a higher capacity.

## Storing Spare Battery Packs

Batteries that you will store for long periods you should charge to about 50% and removed from the unit. Storing batteries either fully charged or fully discharged can adversely affect the capacity of the batteries. A spare battery pack should be usable for up to one year. Unlike NiCd/NiMH batteries, the Titan RT's Lithium Ion battery pack has no memory. Therefore, there is no need for a discharge cycle, and you may use it at any time during the recharging.

## The Power Indicator Light

The tri-color (red-amber-green) indicator light on the right side of the Titan RT's external keypad (see Figure 15) indicates power status (see Table 2 below).

**Table 2 - Battery Power Indicator States**

<b>Power Indicator Color</b>	<b>Condition</b>
 <b>Green</b>	Running on fully charged battery
 <b>(No light)</b>	Power off; no battery and no AC adapter connected
 <b>Amber</b>	Charging battery
 <b>Blinking Red</b>	Battery power running low, or dead battery
 <b>Solid Red</b>	No battery installed but AC adapter supplying power; battery improperly installed or damaged

When the Titan RT's power indicator light starts blinking red, approximately 15 minutes remain until the battery cuts out and the tablet computer shuts down. In this case, even if the tablet computer shuts down, just plug the tablet computer into a power source to start recharging the battery.

**Note:** A solid red or solid green indicator light is normal for a Titan RT using an AC adapter without a battery pack, depending on what AC adapter is used. A blinking red indicator light may indicate a battery pack that is dead or nearly dead, as the battery often is still supplying a little current, even if the tablet computer cannot run on the power it supplies. When a battery pack's capacity has faded to the point of non-usability, replace it with a fresh battery pack following the steps in the next section.

A power indicator displaying a constant red light indicates the Titan RT cannot communicate with the battery, because either you improperly installed the battery pack, or the battery is damaged. In this case, try removing and reinstalling the battery pack. If the indicator still shows a solid red after reinstallation, the battery may be damaged, and you should replace it with a fresh battery pack. To reinstall or replace a battery pack, follow the instructions in *Field Swapping Battery Packs* below.

**Note:** The indicator on the left side of the keypad is another tri-color indicator that is available for use by custom application software (see Figure 15).

## ***Field Swapping Battery Packs***

When you need to replace the battery pack:

1. Close all open applications, saving data to the storage area or storage card.
2. Press the power button briefly to place the Titan RT in suspend mode (see Table 1).
3. Using a screwdriver or coin, remove the two slotted screws securing the battery pack to the bottom rear of the tablet computer.
4. Lift the battery pack up and out of the battery bay (see Figure 2).
5. Insert a fresh battery pack into the battery bay, ensuring that the alignment tabs on the battery fit into the alignment slots and that you have firmly seated the battery in the bay.
6. With a screwdriver or coin, reinstall the two slotted screws in the screw holes at the bottom of the battery pack.
7. Press the power button briefly (*less than* five seconds) to reactivate the tablet computer.



**CAUTION:** You should save your data to nonvolatile storage (such as the CF memory card that is installed in your Titan RT) before you replace the battery. Swapping battery packs will cause *all* data in volatile memory (RAM) to be lost. Data previously saved to the nonvolatile CF memory card will not be lost.

**Note:** Titan RT battery packs are proprietary and available only from Farm Works Software. You may purchase replacement or spare battery packs online at [www.farmworks.com](http://www.farmworks.com) or by calling to speak to a member of our helpful sales team at 1-800-225-2848.

# Using the Titan RT

There are two ways to use the Titan RT: (1) Pressing the external buttons, or (2) tapping the touchscreen with your finger or the stylus.

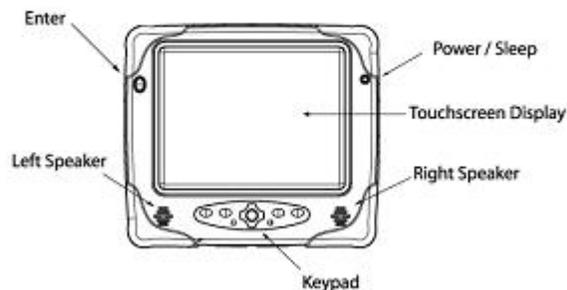


Figure 14. Titan RT (Front View)

## Power-Sleep Button

The Power button on the upper, right-hand side of the Titan RT's housing (see Figure 14) lets you power on, suspend and reset the tablet computer. For more on this button's functionality, see *Setting Up the Titan RT* in this product guide.

## Enter Buttons

The Titan RT has two Enter buttons (see Figures 14 and 15) that let you select a menu item or make a program entry:

- The Enter button, located on the upper, left-hand side of the tablet computer housing
- The Enter button located in the center of the navigation buttons on the keypad

You may reprogram either of the Enter buttons to perform another task, as necessary (see *Keypad* below for instructions on programming keypad buttons to perform different tasks).

## Keypad

Located directly under the touchscreen, the tablet computer's keypad (see Figure 15) provides:

- An Enter button, surrounded by four navigation buttons for moving the cursor up, down, right and left.

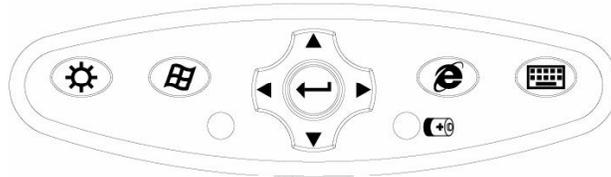


Figure 15. Titan RT Keypad

- Four keys with these default functions:
  - Brightness (located on the far left side of the keypad) – Toggles between the current display brightness and maximum brightness.
  - Windows (located in the middle left of the keypad) – Press to display the Start menu (see Figure 18).
  - Internet (located in the middle right of the keypad) – Press to launch Internet Explorer (requires that the Titan RT be connected to the Internet and properly configured for Internet access).
  - Keyboard (located on the far right of the keypad) – Press to toggle on and off the Input Panel (see Figure 20).

**Note:** To redefine a keypad key's function: Tap Start | Settings | Control Panel, then double-tap the Hotkey applet of the control panel. Tap Enable Hot Keys, tap the selection box corresponding to the key, and browse for the file you wish to map to the key. After selecting the file, tap OK to have the key to activate the mapped file. In some models of the Titan RT, the Internet hot key is already mapped to the Site Mate program. Pressing the hot key of these systems will open Site Mate.

- Two tri-color (red-amber-green) indicator lights:
  - The indicator light on the left is available for use by customized software.
  - The indicator light on the right indicates the power status (see Table 2).

## Optional Ports

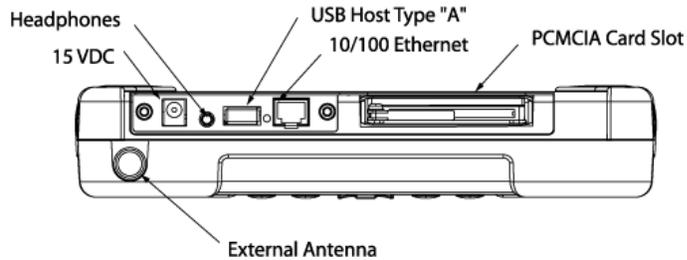


Figure 16. Titan RT (Top View)

Ports and connectors on the top of the Titan RT (see Figure 16) are not necessary for the use of the device, but are for your convenience. These provide the following connectivity:

- You may use the 15 volts DC power port for a secondary AC adapter *instead* of the main power port at the bottom of the Titan RT.



**WARNING:** Do *not* connect two AC adapters to the Titan RT as the same time. Doing so may damage the tablet computer and even cause a fire or an explosion. Use only one AC adapter at a time, and use only an AC adapter supplied by Farm Works Software, or an authorized Farm Works Software dealer.

- You may use the headphone jack with standard headphones.
- The USB 1.1 (Universal Serial Bus) host type A connector facilitates connectivity with peripherals. It supports data transfer at a full-speed of 12 million bits per second (12.0 Mbps) and at a low-speed of 1.5 Mbps.

**Note:** You may use both USB ports (the one at the bottom of the Titan RT and the one at the top) simultaneously. This enables you to use two USB devices at the same time if you desire to do so.

- The RJ-45 network jack lets you connect an Ethernet network or crossover cable.

Also on top of the Titan RT is the PCMCIA (PC Card) slot. Installed in the slot is a 128 MB CF memory card and adapter, which is used as nonvolatile storage that should not be lost if the battery becomes completely discharged or the tablet computer otherwise loses power. You should *not* remove this CF card. (For information regarding the CF card—as well as information on the removable storage USB drive—see *Storing Data* later in this product guide.)

## Port Covers

Two port covers protect the ports on the top of the Titan RT. One port cover shields the PC Card slot (where the CF memory card is installed). The other guards the ports that are not necessary to use, but are available should you need them—a headphone jack port, a network (RJ-45) port, an additional AC adapter port, and a second USB 1.1 port. When possible, keep the port covers installed with the provided screws to protect the ports from moisture and debris.

**Note:** You must properly install both port covers in order to meet the IP67 and NEMA 4 seal ratings.

## Headphone Jack

The Titan RT lets you listen audio from its speakers, and via the 3.5 mm stereo headphone jack on top of the tablet computer (see Figure 16). You may purchase headphones separately.

## Taskbar and Start Menu

When you power on the Titan RT, the taskbar with its Start button and other items appear at the bottom of the tablet computer's touchscreen.

### Taskbar

Like the taskbar of other Windows operating systems, you may minimize program windows to the Windows CE .NET taskbar. Restore the windows by tapping them with the stylus.



Figure 17. Windows CE .NET Taskbar of the Titan RT

The taskbar's notification area shows the time, and displays devices to which the Titan RT is connected. The taskbar also contains:

- The Start button , which displays the Start menu when tapped (see Figure 18).
- The Desktop button  (located to the right of the notification area), which minimizes all windows to the taskbar when tapped (see Figure 17).
- The Input Panel button  (to the right of the Desktop button), which opens the Input Panel menu when tapped (see Figure 19).

## Start Menu

Tap the Start button  to display the Start menu. The Start menu appears, showing Programs, Favorites, Documents, Settings and other menu items (see Figure 18).

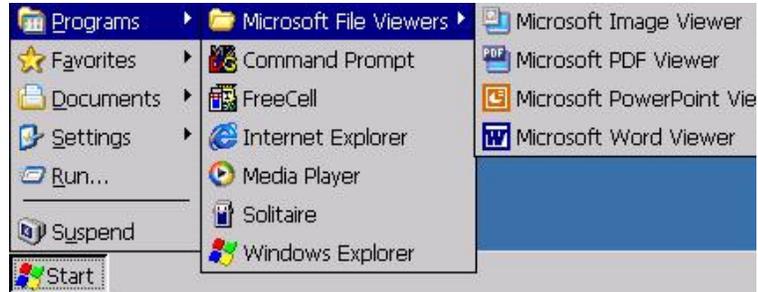


Figure 18. Windows CE .NET Start Menu of the Titan RT

## Preinstalled Programs

The Titan RT has several Control Panel applets (i.e., Microsoft software utilities to help you change the Windows CE .NET operating system settings) are available by choosing the Control Panel menu item from the Settings menu (tap Start  | Settings | Control Panel).

In addition, the Titan RT typically has preinstalled programs. The following programs appear on the Programs menu.

- Command Prompt
- Farm Works Mate
- Media Player
- Microsoft Excel Viewer
- Microsoft Image Viewer
- Microsoft PDF Viewer
- Microsoft PowerPoint Viewer
- Microsoft Word Viewer
- Microsoft WordPad
- Pocket Internet Explorer
- Remote Display Control
- Windows Explorer

## Using the Input Panel

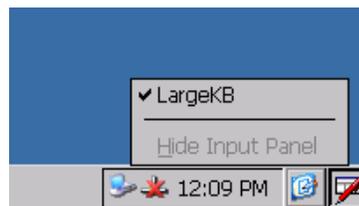


Figure 19. Input Panel Menu

When entering text without a physical keyboard, you will need to use the Input Panel (or onscreen keyboard). To activate the Input Panel:

1. Tap the Input Panel button  on the far right of the taskbar (see Figure 19).
2. Tap the LargeKB menu item on the Input Panel menu.
3. Alternately, the rightmost function key on the Titan RT keypad (see Figure 15) toggles the Input Panel on and off.
4. The Titan RT displays the Input Panel (see Figure 20). Use the stylus to tap letters, numbers and symbols in the order needed in the textbox.

Input Panel															
Esc	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	Home	End	Prop
`	1	2	3	4	5	6	7	8	9	0	-	=	BS		
Tab	q	w	e	r	t	y	u	i	o	p	[	]	\		
Caps Lock	a	s	d	f	g	h	j	k	l	;	'		return		
Shift	z	x	c	v	b	n	m	,	.	/	up			pgup	
Ctrl	win	Alt							ins	del	lt	dn	rt	pgdn	

Figure 20. Input Panel (Onscreen Keyboard)

If necessary, move the Input Panel by placing your stylus on the panel's title bar and then dragging the panel to the desired position (see *Setting Up the Titan RT* for instructions on how to drag using the stylus).

### Input Panel Keys

Most keys on the Input Panel (see Figure 20) are intuitive, but some keys require explanation:

- **Esc** – Escape key, which you tap to close a Control Panel applet.
- **F1 through F12** – Function keys, which are available for use by software you may install on the Titan RT.
- **Win** – Windows key, which you tap to display the Start menu.

The Input Panel does not represent movement keys by arrows (as on a computer keyboard), but instead: BS is the backspace key, Up is the up arrow key, Lt is the left arrow key, Dn is the down arrow key, and Rt is the right arrow key.

To close the Titan RT Input Panel:

1. Tap the Input Panel button on the far right of the taskbar.
2. Tap Hide Input Panel on the popup menu (see Figure 19).

3. Alternately, pressing the rightmost function key on the Titan RT keypad (see Figure 15) hides the Input Panel.

## Changing the Titan RT Settings

Settings that govern how your Titan RT functions, such as what it does if left idle, are modified using Windows CE .NET Control Panel applets (i.e., operating system utilities). Settings are stored in the Titan RT's built-in flash memory, which is nonvolatile and persists even if you remove the tablet computer's AC adapter or optional battery pack for extended periods.

To change a tablet computer's configurations, tap Start  | Settings | Control Panel. The Control Panel appears (see Figure 21).

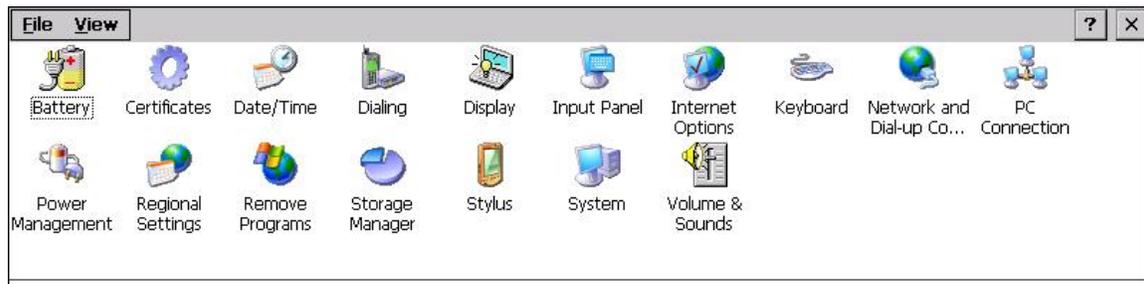


Figure 21. Windows CE .NET Control Panel

**Note:** To cause all Control Panel applets to appear on a submenu of the Control Panel menu, tap Start  | Settings | Taskbar and Start Menu. In the Taskbar and Start Menu Properties dialog box that appears, tap the Advanced tab, check the Expand Control Panel checkbox, and tap OK.

Many Control Panel applets on the Titan RT are similar to those on your desktop, laptop, or other computer. Since using Control Panel applets to adjust settings on your computer is intuitive, we focus here only on those applets that help you manage your tablet computer's power. These applets include Battery Properties, Display, and Power Management Properties.

### ***Battery Properties***

Because the Titan RT runs on battery power when used as a portable computer, it is important to determine how much battery power is left. You can see how much battery power remains and how much time is left before battery power runs low by viewing the Battery Power tab of the Battery Properties dialog box.

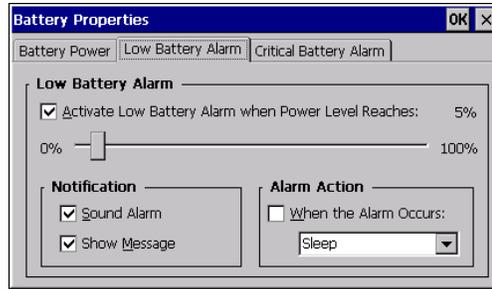


Figure 22. Battery Properties Dialog Box

The Low Battery Alarm tab (see Figure 22) and Critical Battery Alarm tab of the dialog box let you set low and critical battery power thresholds respectively, as well as set auditory or visual alarms to notify you when battery power gets low. The Titan RT can also be set to move into Display Off or Suspend mode when it reaches these thresholds. For more information about these power states, see Table 1.

## Display

One of the means of extending battery life is properly managing of the backlight of the Titan RT liquid crystal display (LCD) touchscreen, which can consume a significant amount of power. The Brightness/Contrast tab of the Display dialog box (see Figure 23 below) lets you reduce backlight power consumption to conserve power.

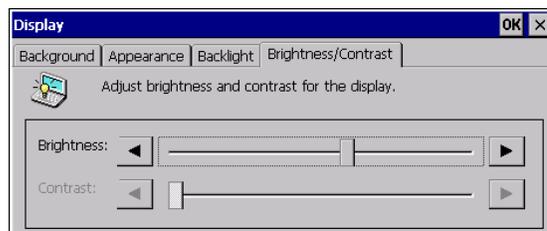


Figure 23. Display Dialog Box

In full daylight, you may need to set the tablet computer to full brightness. At night or in places where less ambient light is present, this tabbed window lets you adjust the tablet computer's backlight to a lower setting to conserve battery power.

**Note:** Since Windows automatically adjusts the contrast of the display the Contrast slider is disabled.

## Power Management Properties

There are two power schemes in the Power Management Properties dialog box—one for a Titan RT running on external power, and one for a Titan RT running on battery power (see Figure 24).

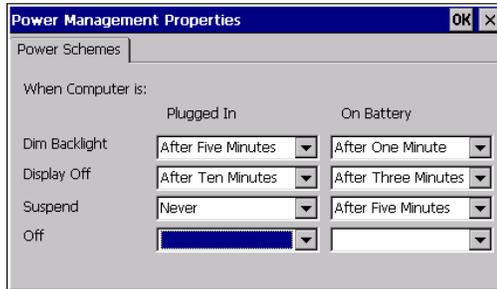


Figure 24. Power Management Properties Dialog Box

- **Dim Backlight** – Sets the tablet computer to dim the touchscreen backlight after a period of user inactivity lasting minutes, hours, or days, or to never dim the backlight. In Dim Backlight mode, user-initiated system processes will still be running. When the backlight dims, tapping the touchscreen returns the tablet computer to an active state.
- **Display Off** – Sets the tablet computer to turn off the backlight after a period of system inactivity lasting minutes, hours, or days, or to never turn off the backlight. Although no system processes are running when the tablet computer is in Display Off mode, it preserves your work in RAM. With a tablet computer in this mode, press the Power button to reactivate the tablet computer.
- **Suspend** – Sets the tablet computer to turn off the backlight and go into Suspend mode after a period of inactivity lasting minutes, hours, or days, or to never automatically go into Suspend mode. This mode substantially conserves power by turning off the backlight and drastically reducing power to unused system components, while preserving your work in RAM. When you press the Power button to resume from Suspend, Windows displays program windows as they were before the device entered Suspend mode.

**Note:** If possible, save your work before leaving your Titan RT unattended for any lengthy period. This way, if the tablet computer loses power, the data will be safe on the CF storage card.



# Storing Data

There are several ways to store data when using the Titan RT. You can save files to:

- The 128 MB (megabytes) of internal random access memory (RAM) main memory
- The 64 MB built-in flash memory storage area
- The 128 MB installed CompactFlash (CF) storage card
- The 128 MB removable USB drive
- Another computer via a wired or wireless network connection
- A USB-compatible external hard drive, external CD-R drive, or other external disc burning hardware device

The RAM main memory is volatile in that any data stored to it is lost if the Titan RT loses power (much like a new document that is not yet saved is lost when a desktop computer loses power). In contrast, the built-in flash memory storage area and the CF storage card are nonvolatile, so data saved to these locations will *not* be erased when power is lost (something like a desktop computer where a document saved to a hard drive is not lost when the power is turned off). Farm Works Software recommends that, whenever possible, you save files to the CF storage card to protect them from loss and to make it easy to copy the files to the USB drive using the TitanSync utility (see *Synchronizing with the USB Drive* below).

## Built-In Flash Memory Storage Area

The Farm Site Mate program and other Farm Works Software is preinstalled to the 64 MB of built-in flash memory, called the storage area. The flash memory is nonvolatile and, if the Titan RT loses power, it automatically reinstalls the programs to the main memory (RAM) once you restore power to the tablet computer. It also restores program settings saved to the CF storage (see *Saving Software Settings to the Storage Card* below).

You have the option of saving files to the storage area. However, it is recommended that you use the CF storage card for this purpose, instead, so you may use the TitanSync utility will copy files to the USB drive (see *Synchronizing with the USB Drive* below). The My Computer or Windows Explorer window represents the internal flash memory as the Storage folder.

## CompactFlash (CF) Storage Card

The 128 MB CF memory card, called the storage card installed in the Titan RT is *not* a removable storage device, as is the USB drive (see *USB Drive Removable Storage* below). Once you save files to the storage card, they are permanently stored until you delete them. No loss of data saved to the card occurs even if you reset the tablet computer. The storage card is where Farm Site Mate and other Farm Works Software applications save project files (such as logs, maps and variable rate control data). My Computer or Windows Explorer represents the CF card as the Storage Card folder.

If you wish to use a removable storage device, Farm Works Software strongly recommends you utilize the Farm Works Software USB drive, which shipped with your tablet computer (see *USB Drive Removable Storage* below).



**CAUTION:** YOU SHOULD NOT USE THE TITAN RT WITH THE CF CARD REMOVED. Removing the card may result in a loss of data, as Farm Site Mate and other programs preinstalled on your tablet computer save important files to the storage card.

### ***Saving Software Settings to the Storage Card***

You may save the software configuration settings for Farm Site Mate and other Farm Works Software programs that you have registered for your Titan RT to the CF storage card. To do this:

1. Open the Farm Site Mate program.
2. Tap the File menu and select the Save Settings To Card menu item. A dialog box appears.
3. In the dialog box, make sure you select Storage Card in the Card Name list box, and then tap Save to save the settings to the card.
4. A message box indicates when the program successfully exports the settings to the storage card. Tap OK.
5. Tap Close to close the dialog box.

**Note:** Saving the software settings to the card will save you the inconvenience of reconfiguring the software and obtaining a new registration number from Farm Works Software to reregister the software. The Titan RT usually restores this information, even if you have disconnected it from the AC adapter or it otherwise loses power.

### ***Replacing the CF Storage Card***

The Type I CF storage card installed with a Type II PCMCIA (PC Card) adapter is in the PC Card slot of your Titan RT (see Figure 16). The PC Card slot is equipped with a hold-down bar that keeps installed cards solidly in place and unaffected by vibrations or rough handling (see Figure 4). You may eject the installed card by using an ejector button inside the card slot.

For reasons explained above, you should remove the CF storage card only to replace it with a new CF card that you obtain from Farm Works Software. To install a Type I CF card in the PC Card slot:

1. Remove the four screws that hold down the cover plate.
2. Loosen the hold-down bar screw, and slide the hold-down bar out of the way.
3. Press the ejector button to eject any adapter and card currently in the slot.
4. Insert the Type I CF card in the Type II CF card adapter.
5. With the CF card's label turned toward the back of the Titan RT (see Figure 4) insert the adapter into the PC Card slot and gently but firmly seat it in the slot.
6. Put the hold-down bar in contact with the card adapter and tighten its screw.
7. Replace the cover plate and reinstall its four screws.

**Note:** When using PC Cards and CF cards, you must reinstall the PC Card slot cover to meet the IP67 and NEMA 4 seal ratings.

## USB Drive (Removable Storage)

Farm Works Software ships a USB drive (also called a flash drive, key chain drive, or thumb drive) with your Titan RT. The USB drive (see Figure 25) is the primary removable storage device, unlike the CF storage card, which should remain installed in the tablet computer (see *CompactFlash (CF) Storage Card* above).

You may save your data (such as log files, maps and variable rate controller data) to the USB drive, remove it from the Titan RT, and then bring it to your desktop, laptop, or other computer to transfer the files. My Computer or Windows Explorer represents the USB drive as the Hard Disk folder.

The USB drive is a convenient way to import files into other software applications, such as the popular Farm Works office suite applications—Farm Trac+, Farm Funds, Farm Site and Site Pro. For information regarding how to use the USB drive, see *Synchronizing with the USB Drive* below.

**Note:** For more information regarding available Farm Works Software programs see the software demos online at [www.farmworks.com](http://www.farmworks.com), or call to speak to one of our helpful sales team members by dialing our toll free number **1-800-225-2848**.



Figure 25. Removable USB Drive

**Note:** The Farm Works Software USB drive is compatible with all current Universal Serial Bus 1.1 standard architecture. It function with your desktop, laptop, or other computer as long as it has an enabled USB 1.1 or Hi-Speed USB 2.0 port. If the computer has Windows 98 or Windows 98 Second Edition (SE) installed, you may need to install the USB software drivers using the USB Flash Drive CD that was shipped with your Titan RT (see Figure 5).

### ***Synchronizing the Titan RT with the USB Drive***

Synchronizing with the Farm Works Software USB drive is an easy way to transfer files to and from your Titan RT. By synchronizing with the USB drive, you may use it to carry copies of your important Farm Works Mate project files (such as log files, prescription maps and variable rate control data) with you to your desktop, laptop, or other computer, while leaving the tablet computer back in your combine, tractor, or other vehicle.

The TitanSync utility automatically displays a dialog box whenever you insert the USB drive into the Universal Serial Bus port of the Titan RT, or into the USB port of your desktop, laptop, or other computer that has the Farm Works Software office suite programs installed. To complete the synchronization process:

1. Make sure the write-protect switch on the bottom of the USB drive is set to the unlock setting.
2. Insert the USB drive gently but firmly into the bottom USB port of the Titan RT (see Figure 25). Be sure not to insert the USB drive upside down—when you correctly insert the USB drive, its indicator light is visible from the front of the tablet computer.
3. The TitanSync utility automatically detects the USB drive and displays a dialog box, which you may use to choose the synchronization options you desire.

4. Make sure the dialog box indicates the status of the USB drive is connected. If it indicates that it is not connected, wait 30 seconds. If after that time it is still not indicating that the USB drive is connected, try removing the USB drive for ten seconds and then reconnecting it to the USB port again.
5. Depending on what Farm Works Software applications are registered on the Titan RT, the dialog box displays up to four sections and as many as eight checkboxes of options you may choose. You may select as many, or as few, of the options you want by tapping the checkboxes.
6. In the My Documents section of the dialog box:
  - a. **Remove Copied Log Files From Titan** – Check this checkbox to delete files from the My Documents folder of the storage card of the Titan RT after they are copied to the USB drive.
7. In the VRA Rx Maps section:
  - a. **Remove All Old VRA Rx Maps From Titan** – Check this checkbox to delete old variable rate adjustment maps from the Titan RT before TitanSync copies the new maps to it.
  - b. **Remove Copied VRA Rx Maps from USB** – Check this to delete every variable rate adjustment map from the USB drive after they are copied to the Titan RT.
8. If you have purchased a CD key for and registered Trac Mate on the tablet computer, you will also see the Trac Mate section, which has three checkboxes:
  - a. **Remove Old Work Orders From Titan** – Check this to delete Trac Mate logs from the tablet computer after they are copied to the USB drive.
  - b. **Remove Old Work Orders from USB** – Check to delete Farm Trac+ work orders from the USB drive after TitanSync copies them to the Titan RT.
  - c. **Remove Copied Scouting Jobs From Titan** – Check to delete scouting job logs from the tablet computer after they are copied to the USB drive.
9. In the Background Maps section, there are two checkboxes.
  - a. **Remove All Old Background Maps From Titan** – Check this to delete the delete every background map that is copied to the USB drive.
  - b. **Remove Copied Background Maps From USB** – Check this checkbox to delete maps from the USB drive after they are copied to the Titan RT.
10. To close the dialog box *without* synchronizing, select the Hide This Window button.
11. To synchronize according to the options you checked, tap the Synchronize Data button. When the synchronization completes, tap Hide to close the dialog box.

## ***Updating Software with the USB Drive***

To have the Farm Works Software synchronization utility install a software update saved to your USB drive, do this:

1. Download the software update from **[www.farmworks.com/update/](http://www.farmworks.com/update/)** .
2. Save the update to the USB drive.
3. Bring the USB drive to the Titan RT and connect it as described in the previous section. The synchronization utility dialog box appears.
4. In the TitanSync utility dialog box, tap the Update Software button and then tap Hide This Window. The utility updates the software and prompts you to complete the installation by doing a hard reset.
5. Perform the hard reset by pressing the power button for 15 seconds (for more information on resetting, see *Setting Up the Titan RT*).

**IMPORTANT:** Be careful to save the software update to the root directory, but not to any folder, on the USB drive. If you save the update to a folder, the TitanSync utility will not recognize it.

## ***Folders Used by Farm Works Mate Programs***

The TitanSync utility automatically creates an identical directory structure (i.e., folders) on the USB drive, and on the CF storage card of the Titan RT. The directory structure created consists of these folders:

- The Background Maps folder
- The My Documents folder
- The TMSMData folder
- The VRA Rx Maps folder

The Background Maps and VRA Rx Maps folders are where ArcView shape files (e.g., files that have .SHP, .SHX and .DBF extensions) are stored.

You should only use the TMSMData folder if you have purchased a CD key for Trac Mate and registered the program on your Titan RT. The TMSMData folder has the following subfolders within it:

- The project subfolders (i.e., folders named with eight numbers and a period followed by the letters PRJ)
- The Fieldbounds subfolder
- The Scouting subfolder
- The SiteMate subfolder
- The Startup subfolder

**IMPORTANT:** It is imperative that you do *not* change the default folders where Farm Site Mate and other Farm Works Software programs save your log files, scouting maps, VRA prescription maps and other data files, as *this change may cause a loss of data*.

The Fieldbounds subfolder is the place the program saves the Trac Mate field boundaries (e.g., ArcView shape files with the extensions .SHP, .SHX and .DBF). The Startup folder is where the shortcut to the Farm Works Mate software (i.e., Farmworksmate.lnk) and the shortcut to the TitanSync utility (i.e., TitanSync.lnk) reside.

Farm Site Mate and other Farm Works Software applications use the folders and subfolders of the created directory structure as the default locations for the synchronized files. If you have questions regarding the file types that the programs create, please see the documentation for those programs.

**Note:** The TitanSync utility automatically saves files to the correct folders according to the synchronization options you choose (see *Synchronizing with the USB Drive* above). If you wish to store other files on your USB drive, however, you should save them to the My Documents folder of the Storage Card folder of the Titan RT. The TitanSync utility will automatically copy the files in this folder to the My Documents folder of the USB drive the next time you synchronize it with the tablet computer.

## ***Where Files are Synchronized***

When you synchronize the USB drive with the Titan RT, the TitanSync utility copies files in certain folders on the USB drive to the folders with the same name on the tablet computer and files in certain folders on the Titan RT to the folders of the same name on the USB drive, as shown below:

- **Background Maps folder** – TitanSync copies files in this folder on the USB drive to the folder with the same name on the Titan RT.
- **My Documents folder** – TitanSync copies files in this folder on the Titan RT to the folder of the same name on the USB drive.
- **TMSMData folder** – TitanSync copies files in this folder on the USB drive to the folder of the same name on the Titan RT, and files in this folder on the Titan RT are copied to the folder of the same name on the USB drive.
- **VRA Rx Maps folder** – TitanSync copies files in this folder on the USB drive to the folder with the same name on Titan RT.

**Note:** If you have additional files on the Titan RT that you want to the TitanSync utility to automatically copy to the USB drive, save them to the My Documents folder located in the Storage Card folder of the tablet computer. Do not save the files to the Windows CE .NET My Documents folder of the main memory.

## ***Synchronizing with a Desktop Computer***

It is just as easy to synchronize the Farm Works Software USB drive with a laptop, notebook, or desktop personal computer running Farm Works office software. All that is required is that the computer has an enabled USB port and has the Farm Trac or Farm Site program installed. To synchronize the USB drive with a desktop or other computer:

1. Start the Farm Works office software on your desktop, laptop, or notebook computer.
2. Connect the Farm Works Software USB drive to a USB port of the computer.
3. In the Farm Works office program, select Sync Trac Mate from the File menu. The Trac Mate Options dialog box appears.
4. In the dialog box, choose the Trac Mate Version 9.0 Or Higher option button to synchronize Trac Mate job data to the Farm Works office program. Alternately, you should select the Site Mate Version 9.0 Or Higher option button to synchronize Site Mate log files to the Farm Works office program.

**Note:** If you want to synchronize *both* Trac Mate and Site Mate data, you may repeat the synchronization process after you complete this synchronization procedure.

5. Select the Synchronization Location list box and choose the drive letter for the USB drive.
6. Check the View Operations, the Upload Boundary, and the Apply GPS Quality Filter checkboxes if desired. (You may check one, more than one, or none of the checkboxes.)
7. Select OK. The Farm Works office program indicates when the synchronization is complete. Select OK to close the message box.
8. Before removing the USB drive from the USB port, you should use the Windows Safely Remove Hardware utility: To do so, double-click the Safely Remove Hardware icon in the Windows system tray (which is located on the taskbar near the clock). In the Unplug Or Eject Hardware dialog box, choose drive letter for the USB port to which the USB drive is connected, and select OK, and OK. Windows indicates when it is safe to unplug the USB drive.

**Note:** For information on viewing the synchronized data in the Farm Works office software, see the user guide for your Farm Trac or Farm Site software.

# Troubleshooting Guide

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
<b>Titan RT does not turn on.</b>	You did not wait long enough for display to appear after powering on or resetting.	Wait at least 30 seconds before pressing the power button a second time.
	AC adapter is not properly attached.	Reattach the AC adapter (see <i>Setting Up the Titan RT</i> ).
	Voltage of the optional battery pack dropped below a threshold, under which it does not function.	Recharge or replace the battery pack (see <i>Using the Optional Battery Pack</i> ).
	Battery pack is incorrectly installed.	Ensure battery is properly installed (see <i>Using the Optional Battery Pack</i> ).
	Battery is not charged.	Charge or replace battery pack (see <i>Using the Optional Battery Pack</i> ).
<b>Titan RT turns itself off.</b>	Voltage dropped below threshold, causing the shut down; AC adapter disconnected.	Recharge or replace battery (see <i>Using the Optional Battery Pack</i> ) or reconnect the AC adapter.
<b>Titan RT is unresponsive.</b>	Windows CE .NET crashed.	Press and hold the power button <i>longer than</i> five seconds to perform a hard reset (see <i>Setting Up the Titan RT</i> ).
<b>Titan RT still does not respond after a hard reset.</b>	Windows CE .NET crashed.	Recycle power to all onboard devices: (1) Remove AC adapter. (2) Remove battery pack for 10 minutes. (3) Reinstall battery and AC adapter. (4) Press power briefly (less than five seconds). (See <i>Setting Up the Titan RT</i> .)
<b>Display is too dim or bright.</b>	Brightness of display determined by setting in the Display applet of the Control Panel.	Use the Brightness slider in the <i>Display</i> control panel to adjust touchscreen brightness (see <i>Using the Titan RT</i> ).
<b>Backlight is dimmed.</b>	User inactivity caused Titan RT to move to Dim Backlight mode.	Touchscreen to reactivate Titan RT (see Table 1).
<b>Touchscreen display is off.</b>	User chose Start   Suspend or pressed power briefly with display on or dim.	Press power button briefly (less than five seconds) to reactivate Titan RT (see <i>Setting Up the Titan RT</i> ).
	System inactivity caused Titan RT to move to Display Off mode.	Press power button briefly (less than five seconds) to reactivate Titan RT (see <i>Setting Up the Titan RT</i> ).
	Further inactivity caused Titan RT to move to Suspend mode.	Press power button briefly (less than five seconds) to reactivate Titan RT (see <i>Setting Up the Titan RT</i> ).
	Voltage dropped below a user-set threshold, causing Titan RT to move to Display Off mode.	Press power button briefly (less than five seconds) to reactivate Titan RT (see <i>Setting Up the Titan RT</i> ).

<b><u>Problem</u></b>	<b><u>Cause</u></b>	<b><u>Solution</u></b>
	Voltage dropped below a user-set threshold, causing Titan RT to move to Suspend mode.	Press power button briefly (less than five seconds) to reactivate Titan RT (see <i>Setting Up the Titan RT</i> ).
<b>Tapping touchscreen selects incorrect items.</b>	Touchscreen cursor not aligned with stylus.	Recalibrate touchscreen using Stylus applet of the control panel (see <i>Setting Up the Titan RT</i> ). Tap OK when finished recalibrating.
<b>Titan RT does not turn on after installing a replacement battery pack.</b>	Battery pack is installed incorrectly.	Ensure battery is properly installed (see <i>Using the Optional Battery Pack</i> ).
	Replacement battery pack was in storage more than a year.	Recharge or replace the battery pack (see <i>Using the Optional Battery Pack</i> ). Consider recharging spare battery packs to half-power before storing them.
<b>Battery pack does not recharge.</b>	AC adapter was removed before battery was recharged.	Reconnect to AC adapter and allow battery to go through full charging cycle (two hours for 80% charge, five hours for 100% charge). (See <i>Using the Optional Battery Pack</i> .)
	Ambient temperature is too high for battery pack to properly recharge.	Move to a cooler spot, such as an air-conditioned room, and recharge battery pack there (see <i>Maintenance</i> ).
	Ambient temperature is too low to recharge Titan RT.	Move to a warmer spot, such as a heated room, and recharge battery. Do <i>not</i> place the Titan RT too near a heat source (see <i>Maintenance</i> ).
<b>Battery has to be recharged too often.</b>	Battery capacity has faded.	Replace battery (see <i>Using the Optional Battery Pack</i> ). Be sure to recharge battery packs before they become completely discharged.
<b>Power indicator is blinking red.</b>	Battery charge is running low.	Recharge battery (see <i>Using the Optional Battery Pack</i> ).
	Battery is dead.	Replace battery (see <i>Using the Optional Battery Pack</i> ).
<b>Power indicator is solid red.</b>	AC adapter powering the device with no battery.	Solid red light is normal in this case.
	Battery is incorrectly installed.	Ensure battery is properly installed (see <i>Using the Optional Battery Pack</i> ).
	Battery is damaged.	Replace battery (see <i>Using the Optional Battery Pack</i> ).
<b>Low battery alarm sounds or low battery message box appears.</b>	Battery power reached the low battery threshold set in Battery applet of the control panel.	Recharge battery (see <i>Using the Optional Battery Pack</i> ).
<b>Critical battery alarm sounds or critical battery message appears.</b>	Battery power reached the critical battery threshold set in Battery applet of the control panel.	Recharge battery (see <i>Using the Optional Battery Pack</i> ).
<b>No sound is audible.</b>	Volume setting was low or muted.	Adjust the volume using the Volume & Sounds applet of the control panel (see Figure 21). Examine settings on Output and Input tabs as well as Volume tab. When done, tap OK.

<b><u>Problem</u></b>	<b><u>Cause</u></b>	<b><u>Solution</u></b>
<b>Message appears stating Titan RT's memory is full.</b>	Memory allocation for storage is too low.	Use Memory tab of the System applet of the control panel to allocate more memory to storage (see Figure 21).
	Memory allocation for programs is too low.	Use Memory tab of the System applet in the control panel to allocate more memory to programs (see Figure 21).
	Too many files are stored on Titan RT.	Too many old Farm Site Mate files are stored on the Titan RT. When synchronizing the USB drive with the tablet computer, consider checking the checking the boxes in the Status dialog box to remove files from the Titan RT (see <i>Storing Data</i> ). These files will be <i>permanently deleted</i> from the tablet computer.
		Delete old files on Titan RT to recover memory, or save them to the storage area or storage card and delete them from the main memory (be careful not to delete any files or folders within the Farm Works Mate directory structure (see <i>Storing Data</i> ).
	Consider upgrading to a larger CF card (i.e., one capable of storing more than 128 MB of data). (For instructions on installing a new card, see <i>Storing Data</i> .)	
<b>No data received from a connected global positioning system (GPS) receiver.</b>	Too many programs are installed on Titan RT.	Use the Remove Programs applet in the control panel to remove unused programs (see Figure 21).
	The GPS receiver needs more time to pick up the signals of the satellites.	Make sure you are outside for five minutes to allow the GPS receiver to acquire the signals of the satellites.
	Cable is not securely connected to the GPS receiver and the Titan RT.	Check that the cable is securely connected to the Titan RT and to the GPS receiver or IFB box.
	Incorrect cable is connecting the GPS receiver to the Titan RT.	Verify that you are using the correct kind of cable for your GPS receiver (to determine what cable to use, see the documentation provided by your GPS receiver manufacturer).
	Cable to the GPS receiver is connected to the wrong serial communication port.	Connect the cable to serial port two (labeled COMM 2); verify that the correct serial communication port is chosen in Site Mate software: Select Config tab   GPS Settings   Comm tab   select the correct communications port number from the list box. (See <i>Setting Up the Titan RT</i> ).
	GPS receiver or IFB box is not receiving power from its external power source.	Connect the GPS receiver or IFB box to the external power source and verify that the device is receiving the correct voltage.
	GPS source is not set correctly.	In the Farm Site Mate program, select Config tab   GPS Settings   Source tab, and then tap GPS Receiver on COM Port option button.
	The Farm Works Mate software is configured to use an incorrect COM port.	Change the COM port to 2: In Farm Site Mate, tap the Config tab   GPS Settings   Comm tab, and then choose 2 from the COM list box.
	The Farm Works Mate software is configured to use an incorrect baud rate.	Change the baud rate to the correct setting according to the specification of the GPS receiver manufacturer: In Farm Site Mate, tap the Config tab   GPS Settings   Comm tab, and then choose the correct baud rate from the list box. (See the documentation that accompanied your GPS receiver to determine what the baud rate should be.)

<b><u>Problem</u></b>	<b><u>Cause</u></b>	<b><u>Solution</u></b>
	The Farm Works Mate software is set for to high a minimum GPS quality.	Change the minimum GPS quality to one or zero: In Site Mate, select the Config tab   GPS Settings   Quality tab, and then choose 1 or 0 in the minimum GPS quality list box.
	The GPS receiver is receiving interference.	Position the GPS receiver a minimum of 3' to 5' from the Titan RT. Place the receiver to the left or to the right of the Titan RT.
	You have confirmed that the correct serial communication port, baud rate, and minimum GPS quality are configured. However, no GPS data is received.	If no GPS signal is received after five minutes, do a reset of the Titan RT by pressing the power button for 15 seconds (see Table 1).

# Maintenance

The Titan RT is an exceptional tablet computer whose ruggedness, reliability, and ability to perform under extreme weather conditions have been proven in test after test. See *Environmental Qualifications* of this product guide for test results. However, proper care and maintenance of the tablet computer will ensure longer life of the device.

## Cleaning the Titan RT

The surface of the Titan RT's touchscreen and housing may occasionally need cleaning during the course of normal use. Follow these instructions when cleaning your tablet computer:

- Clean the touchscreen using a soft cloth moistened with diluted window-cleaning solution. Dry the screen with a soft, dry cloth.
- Clean the tablet computer's housing using a soft cloth moistened with a few drops of a mild dish detergent and water. Dry using a soft, dry cloth.
- Do not use abrasive or harsh cleaning agents on either the touchscreen or the housing.

## Care of the Touchscreen

The Titan RT's touchscreen is composed of an industrial-strength substrate that passes the EN 50021 High Level Impact testing. To keep the touchscreen in optimal condition:

- Avoid scratching the touchscreen.
- Use only your finger, the supplied stylus, or a plastic-tipped pen intended for use with a resistive touchscreen.
- Never use a regular pen, pencil, screwdriver, or other sharp object on the touchscreen.
- Avoid impacts of sharp or hard objects with the touchscreen.

## Water

The Titan RT is considerably water-impermeable. Its impermeability depends on the extent of exposure to water or humidity, and on how well its housing is secured. For example, you may use the tablet computer with neither port cover installed in humid weather, but if precipitation begins, you should promptly ensure you securely install both port covers.

You can expose the Titan RT, with port covers well secured, to precipitation, however, even though the tablet computer meets the requirements of IP67 (submersion in three feet of water for 30 minutes with no leaks), it is *not* for use underwater. If the unit is accidentally dropped into liquid, remove it immediately and continue working. When the tablet computer is no longer exposed to water or precipitation, dry it thoroughly with a soft cloth.



**WARNING:** The AC adapter is *not* waterproof. You should *never* immerse it in water, as you may damage the Titan RT, or risk electrocution or death.

## Impact and Electrical Current

The Titan RT has passed rigorous shock tests, including mechanical shock, vibration, impact, and drop tests (see *Environmental Qualifications* of this product guide). Advised precautionary measures are:

- Reinstall tablet computer port covers, whenever possible, to avoid damage to the ports, connectors, PC Card slot, PC Cards, or CF cards and adapters.
- Take care not to drop the tablet computer or to subject it to strong impact. Each impact will decrease the tablet computer's ability to withstand future impacts.
- Do not use extreme force when setting the tablet computer down.
- Do not connect or disconnect a serial communication port cable while the tablet computer is on or attached to an AC adapter.
- Plug the AC adapter into the tablet computer *before* you connect it to an electrical power source.
- Do not use an AC adapter other than one supplied by Farm Works Software, or by an authorized Farm Works Software dealer
- Do not connect an AC adapter to the tablet computer that is set greater than 15 volts DC.
- Do not connect two AC adapters to the tablet computer at the same time.
- Do not plug the tablet computer into an electrical outlet during electrical storms.
- Do not immerse the AC adapter in water.

## Heat and Cold

You can use the Titan RT indoors or outdoors. However, where temperatures may be extreme:

- Do not use or leave the tablet computer near a heat source like a blast furnace, fireplace, radiator, wood-burning stove, or oven.
- Do not use the tablet computer when temperatures drop below -20° C (-4° F) or rise above 60°C (140° F).

 **WARNING:** Exposing the Titan RT to temperatures above 60° C (140° F) will risk battery failure or even fire or explosion.

## Battery Disposal

When you must discard Titan RT battery packs:

- Discard the used Lithium Ion battery according to the regulations of your farm, coop, or community.
- Dispose of the battery by dropping it off at a used battery collection facility or a hazardous waste facility. Consult your local authorities regarding laws regulating proper disposal of Lithium Ion batteries.

## Service Information

Please contact Farm Works Software for warranty and non-warranty repairs (see the fax, phone and e-mail address below). See the section *Warranty* of this product guide for further information.

Technical support via fax or e-mail is available free of charge from Farm Works Software. Send a facsimile with your questions or requests to **1-260-488-3737**. To receive an answer via electronic mail, send an e-mail message to **farmwork@farmworks.com**.

Technical support via telephone is available at a reasonable cost. To purchase phone support for a month or for a year, call our sales team toll free **1-800-225-2848**. The phone number to call when you need technical support is **1-260-488-3492**, as the toll free number is reserved for those who want to speak to a sales team member.



# Safe Use of the Titan RT

The Titan RT has received certifications in multiple safety tests (see *Environmental Qualifications* below). However, even certifiably safe products are a potential source of injury if used improperly, so you should take certain precautions:

- Use only a Farm Works Software supplied AC adapter with the tablet computer. Use of another AC adapter may damage the device or cause a fire or an explosion.
- Always connect the AC adapter first to the tablet computer, before connecting it to an electrical power source.
- Provide a properly grounded supply of electric current, voltage and amps for the tablet computer's AC adapter to avoid electrical shock.
- Before plugging the power cord into a power source, make sure the voltage and frequency of the power source match that of the AC adapter.
- If using an extension cord with an AC adapter, make sure that the total current rating of the product does not exceed the current rating of the extension cord.
- Never put the tablet computer into a fire, or place it near a heat source, as it may explode.
- Never immerse the AC adapter in water.
- See *Setting Up the Titan RT* for more information regarding safe use of the AC adapter.

## Ergonomic Recommendations

To eliminate or minimize the risk of ergonomic injury, follow the general recommendations listed below. Consult with your physician to prevent injury.

- Provide a suitable working environment.
- Provide adjustable workstations.
- Provide adequate clearance.
- Maintain a natural posture, avoiding awkward positions.
- Perform tasks at appropriate heights.
- Keep frequently used objects within easy reach.
- Reduce or eliminate repetitive movement.
- Reduce or eliminate excessive force.
- Reduce or eliminate vibration.
- Improve work procedures.
- Take periodic rest breaks.

To eliminate or minimize the risk of ergonomic injury while working with or carrying the Titan RT, follow these specific recommendations:

- Place the device in a position that lets you view and touch the display without strain.
- Place the tablet computer in a position where the sun's rays or artificial lights do not adversely reflect on the touchscreen, causing eyestrain.
- Do not place the device on a surface where vibrations may cause difficulty of use.
- If you have trouble selecting items on the touchscreen, open the Stylus applet in the Control Panel and recalibrate.
- Install the tablet computer's handle on the side that makes carrying the tablet computer easier and offers less chance for the tablet computer to encounter objects that you pass.
- When carrying the tablet computer, set it down on a stable surface whenever possible to avoid strain.

## Environmental Qualifications

The Titan RT has passed numerous tests that prove it can withstand extreme environmental conditions as well as rough handling. The following paragraphs enumerate the multiple environmental qualifications that the tablet computer has earned.

### *Operating Temperature*

The Titan RT has an established operating temperature range of -20° to 60° C (-4° to 140° F), having passed test Nb of the IEC 60068-2-14 standard, "Environmental testing - Part 2: Tests. Test N: Change of temperature." These IEC tests determine the ability of equipment to withstand rapid changes of ambient temperature.

### *Storage Temperature*

The Titan RT has an established storage temperature range of -20° to 60° C (-4° to 140° F), having passed test Bb of the IEC 60068-2-2 standard, "Environmental testing - Part 2: Tests. Tests B: Dry heat." This IEC test determines the ability of non-heat-dissipating equipment to withstand dry heat with a gradual change of temperature.

### *Humidity*

The Titan RT has been proven to withstand 95% non-condensing per the IEC 60068-2-3 standard, "Environmental testing - Part 2: Tests. Test Ca: Damp heat, steady state," severity 10 days.

## ***Vibration***

The Titan RT has been proven to withstand the severity of 2.0g of accelerated (10-150 Hz) sinusoidal vibration on each axis, per the IEC 60068-2-6 standard, "Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal)."

The tablet computer also passed the Vibration test per method 514.5, procedure I, 10-500 Hz, each axis of MIL-STD-810F, "United States Department of Defense Test Method Standard for Environmental Engineering Considerations and Laboratory Tests."

## ***Mechanical Shock***

The Titan RT has been proven to withstand the severity of 50g for 11 ms, half sine on each axis, per the IEC 60068-2-27 standard, "Environmental testing - Part 2: Tests - Test Ea and guidance: Shock." This IEC test applies to equipment, which, during transportation or in use, may be subjected to relatively infrequent, non-repetitive shocks.

## ***Seal Testing (With Port Covers On)***

The Titan RT meets the NEMA 4 rating as per the NEMA 250 standard, "Enclosures for Electrical Equipment (1000 Volts Maximum)," which covers descriptions and applications, features and test criteria, and design tests of all NEMA style enclosures (except for a rotary apparatus).

The tablet computer meets the IP67 rating as per the IEC 60529 standard, "Degrees of protection provided by enclosures (IP Code)," which classifies the degrees of protection provided by enclosures for electrical equipment with rated voltages not exceeding 72.5 KV.

The tablet computer passed the Sand and Dust seal test per NEMA 250.

## ***Impact***

The extreme ruggedness of the Titan RT's touchscreen was proven via high-level impact testing and strength verification using the British Standard EN 50021 standard, "Electrical apparatus for potentially explosive atmospheres – Type of protection 'n'.", High Level Impact, with 500g load, 20 times.

## ***Drop Testing***

The Titan RT passed a Drop Test consisting of a four-foot drop, twenty six times on a single unit per MIL-STD-810F, "United States Department of Defense Test Method Standard for Environmental Engineering Considerations and Laboratory Tests." method 516.5, procedure IV.



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