

Thor VM3

Vehicle-Mount Computer
with Microsoft® Windows® Embedded Compact 7.0



User Guide

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Technical Assistance

If you need assistance installing or troubleshooting your device, please contact us by using one of the methods below:

Knowledge Base: www.hsmknowledgebase.com

Our Knowledge Base provides thousands of immediate solutions. If the Knowledge Base cannot help, our Technical Support Portal (see below) provides an easy way to report your problem or ask your question.

Technical Support Portal: www.hsmsupportportal.com

The Technical Support Portal not only allows you to report your problem, but it also provides immediate solutions to your technical issues by searching our Knowledge Base. With the Portal, you can submit and track your questions online and send and receive attachments.

Telephone: www.honeywellaidc.com/locations

For our latest contact information, please check our website at the link above.

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The duration of the limited warranty for the Thor VM3 is 1 year.

The duration of the limited warranty for the Thor VM3 Dock is 1 year.

The duration of the limited warranty for the Thor VM3 Vehicle Mount Assembly is 1 year.

The duration of the limited warranty for the Thor VM3 internal UPS battery is 1 year.

The duration of the limited warranty for the Thor VM3 AC power supply and cables is 1 year.

The duration of the limited warranty for the Thor VM3 DC/DC power supply is 1 year.

The duration of the limited warranty for the Thor VM3 cables (USB, Serial, Communication, Power) is 1 year.

The duration of the limited warranty for the Thor VM3 headset is 1 year.

Overview

The Thor VM3 Vehicle Mount Computer (VMC) is a rugged, vehicle mounted computer running a Microsoft® Windows® Embedded Compact 7 operating system and capable of wireless data communications from a fork-lift truck or any properly configured vehicle. Wireless communications are supported over a 802.11 WLAN network and, optionally, over a WWAN network. The Bluetooth® module supports Bluetooth printers and scanners.



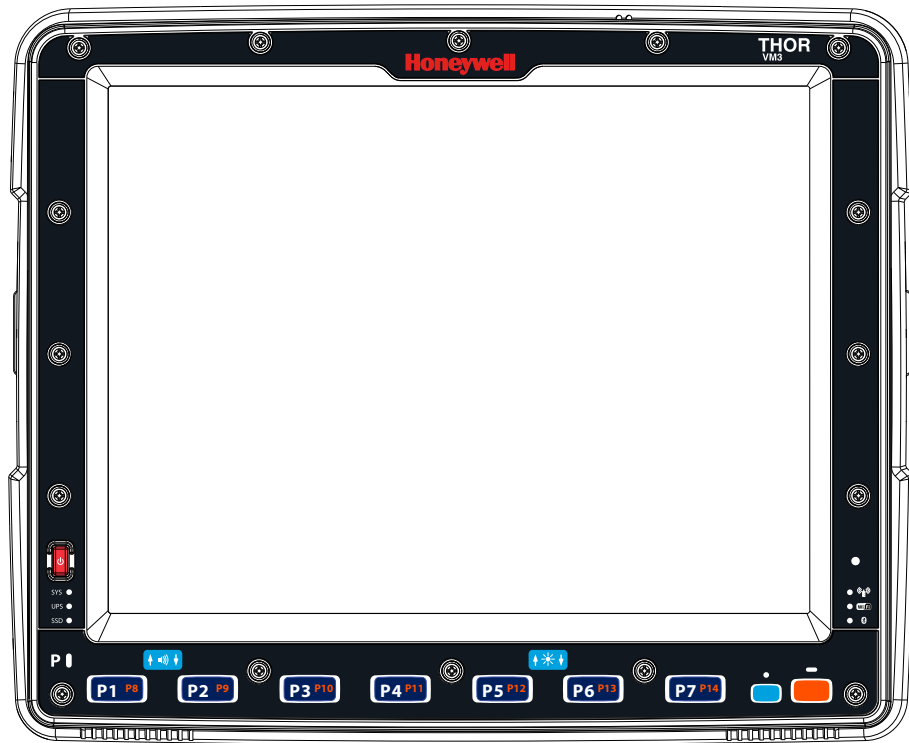
Caution: Before shipping the Thor VM3, be sure to [Disconnect UPS Battery](#)

The Thor VM3 is designed for use with a vehicle dock. Two models of docks are supported, a [Standard Dock](#) and an [Enhanced Dock](#). The dock installs in the vehicle and connects to vehicle power. The dock provides conditioned input power for the Thor VM3. Peripheral connections are on the dock. The Thor VM3 is designed to easily be removed from the dock with a latch on the lower rear of the Thor VM3 housing. Since the dock remains attached to the vehicle, the Thor VM3 computer can easily be moved from one vehicle equipped with a dock to another vehicle equipped with a dock.

The Thor VM3 contains a UPS battery which, when fully charged, can power the Thor VM3 for a minimum of 30 minutes. This can be when the Thor VM3 is not attached to a dock or when the Thor VM3 is attached to a dock but the vehicle power is interrupted, such as when the vehicle battery is being changed.

The Thor VM3 can be used with or without an external keyboard. There are 7 programmable keys (P1-P7) on the front bezel and, when used with the Orange modifier key, provide 7 additional programmable keys (P8-P14).

Contact [Technical Assistance](#) for information on the latest upgrades for your Thor VM3.



About this Guide

This user's guide has been developed for a Thor VM3 with a Microsoft® Windows® Embedded Compact 7 operating system.

Out of the Box

The following items may be packaged separately:

- Thor VM3
- Standard or Enhanced Dock (includes 10-60VDC power cable)
- RAM or U-Bracket vehicle mount kit

If you ordered additional accessories for the Thor VM3, verify they are also included with the order. Keep the original packaging material in the event the Thor VM3 should need to be returned for service. For details, see [Product Service and Repair](#).

Initial Setup for Thor VM3

This page lists a quick outline of the steps you might take when setting up a new Thor VM3. More instruction for each step is listed later in this guide.

Contact [Technical Assistance](#) if you need additional help.

Hardware Setup

1. [Install RAM Mount](#) or [Install U Bracket Mount](#) to the vehicle.
2. [Place Thor VM3 in the Dock](#).
3. Secure the optional external keyboard to either an integrated or remote mounting bracket.
4. [Connect Cables](#) for any peripherals.
5. [Connect Power](#).
6. Secure all cables in [Strain Relief Cable Clamps](#).
7. Press the [Power Switch](#) on the dock to the on position.
8. Press the [Power Button](#) on the Thor VM3.

Note: *After the initial power on, the Thor VM3 can be configured to automatically power on, either when power is attached or the vehicle ignition is turned on.*

9. Perform touch screen [Calibration](#).

Software

Languages

The Thor VM3 is shipped with a multi-language operating system. To change the language displayed, go to the User Interface Language tab of the [Regional Settings](#) control panel. Available languages are displayed in a pull-down list. After selecting the desired language a reboot may be necessary. Use the Restart option on the [Registry](#) control panel to reboot.

First Boot

When a new Thor VM3 starts up a EULA (End User License Agreement) may be displayed on the touch screen. It remains on the screen until the **Accept** or **Decline** button is tapped with a stylus.

Tap the **Accept** button to accept the EULA terms and the Thor VM3 continues the startup process. The EULA is not presented to the user again.

Tap the **Decline** button to decline the EULA and the Thor VM3 reboots. It will continue to reboot until the **Accept** button is tapped with the stylus.

Software Setup

Hardware setup should be completed before starting software setup.

1. If prompted, perform touch screen [Calibration](#).
2. Set [Power Configuration Mode](#) and [Power](#) scheme timers.
3. Adjust [Speaker Volume](#).
4. Configure [Bluetooth Printing](#) and [Bluetooth Scanning](#).
5. Set wireless client parameters using the [WLAN Wireless Configuration Utility \(WCU\)](#).
6. Set terminal emulation parameters.
7. [Save Changes to the Registry](#).

Dock

The Thor VM3 assembly consists of two parts, the Thor VM3 computer and the dock. The Thor VM3 contains an internal UPS battery that, once fully charged, powers the Thor VM3 for a minimum of 30 minutes when the unit is not mounted in the dock.

There are three available vehicle-mount docks for the Thor VM3:

- [VM1D Standard Dock](#)
- [VM3D Enhanced Dock](#)
- [VMXD Enhanced Dock](#)

Additionally an off-vehicle dock is available for the Thor VM3 for use in environment such as an office where AC power is available:

- [VMXD Enhanced Dock for Off-Vehicle Use](#)

All docks provide:

- A mount for the Thor VM3 computer. The dock attaches to a vehicle via a RAM or U-bracket mount or to a RAM table stand for use in an office environment.
- Conditioned power for the Thor VM3. The vehicle-mount docks accept 10-60VDC power input directly or 50-150VDC power input with a DC/DC converter. The off-vehicle dock requires an AC/DC power supply.
- Mobility of the Thor VM3, since the dock remains attached to the vehicle the Thor VM3 computer can easily be moved from one vehicle equipped with a dock to another.
- I/O ports as described in the below.
- Strain relief provisions for cables.
- Headset connection via an adapter cable. When a headset is not attached, the microphone and speakers on the Thor VM3 are active.

Features of the docks are described in the following sections.

VM1D Standard Dock



Caution: This dock is designed for DC power vehicle-mounted applications only.

SKUs	VM1001VMCRADLE (with RAM ball) VM1002VMCRADLE VM1003VMCRADLE
Power Connection	Direct or DC/DC power supply
Serial Ports	COM1 and COM2
USB Ports	USB port provides host connection via an adapter cable. This port also supports Honeywell external keyboards.
Ethernet	N/A
CANbus	CANbus connection via an adapter cable
Audio	Headset connection via an adapter cable
Screen Blanking	Supported via COM1 and COM2 connectors.
Ignition Control	Supported

VM3D Enhanced Dock



Caution: This dock is designed for DC power vehicle-mounted applications only.

SKU	VM3001VMCRADLE
Power Connection	Direct or DC/DC power supply
Serial Ports	COM1 and COM2
USB Ports	USB1 port provides host connection via an adapter cable. This port also supports Honeywell external keyboards. USB2 port provides two USB host ports via an adapter cable. Direct USB host connection on top of dock.
Ethernet	RJ-45 Ethernet connection on top of dock.
CANbus	CANbus connection via an adapter cable
Audio	Headset connection via an adapter cable
Screen Blanking	Supported via COM1 and COM2 connectors.
Ignition Control	Supported

VMXD Enhanced Dock



Caution: This dock is designed for DC power vehicle-mounted applications only.

This dock is designed for use when the Thor VM3 is replacing a Thor VX8 or Thor VX9. This dock utilizes the existing vehicle wiring from the earlier computer and supports screen blanking through that wiring.

SKUs	VMX004VMCRADLE
Power Connection	Designed to connect to existing Thor VX8 or Thor VX9 power cable only, using existing DC/DC power supply
Serial Ports	COM1 and COM2 (see note below)
USB Ports	USB1 port provides host connection via an adapter cable. This port also supports Honeywell external keyboards. USB2 port provides two USB host ports via an adapter cable. Direct USB host connection on top of dock.
Ethernet	RJ-45 Ethernet connection on top of dock.
CANbus	CANbus connection via an adapter cable
Audio	Headset connection via an adapter cable
Screen Blanking	Supported via power cable connector. (see note below)
Ignition Control	Not supported

Note: For the VMX Enhanced Dock: COM1 is used for screen blanking (via the power cable connector) and is unavailable when the screen blanking box is attached. When a screen blanking box is attached, any external serial device such as a scanner, must be connected to the COM2 port on the dock. If a screen blanking box is not connected via the power cable, the COM1 port on the dock is available for a serial device.

VMXD Enhanced Dock for Off-Vehicle Use



Caution: This dock is designed for AC power (non vehicle-mounted) applications only.

SKU	VMX005VMCRADLE
Power Connection	AC/DC Adapter
Serial Ports	COM1 and COM2
USB Ports	USB1 port provides host connection via an adapter cable. This port also supports Honeywell external keyboards. USB2 port provides two USB host ports via an adapter cable. Direct USB host connection on top of dock.
Ethernet	RJ-45 Ethernet connection on top of dock.
CANbus	CANbus connection via an adapter cable
Audio	Headset connection via an adapter cable
Screen Blanking	Supported via COM1 and COM2 connectors.
Ignition Control	Supported

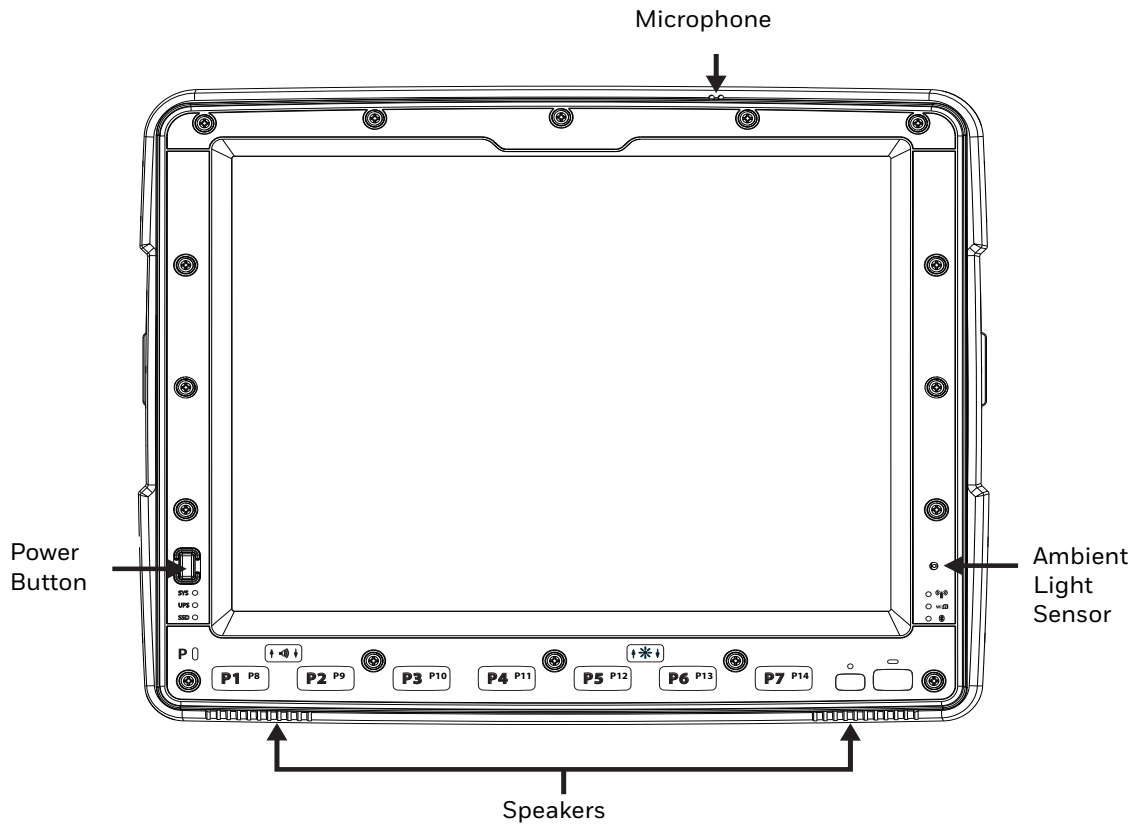
Additional Connectors

External antenna connectors may be present on the back of the Thor VM3. The connectors may include:

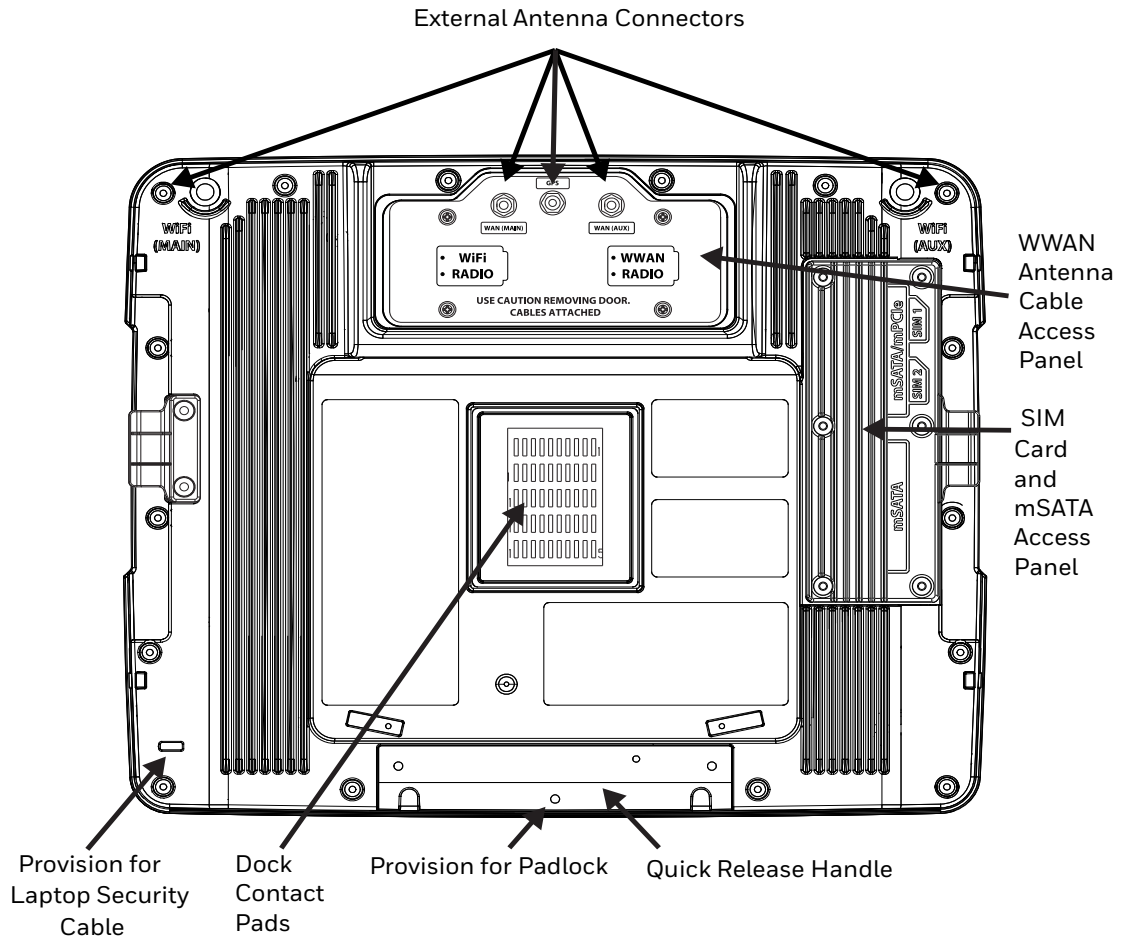
- 802.11 antenna connectors, used when the Thor VM3 is not equipped with internal antennas.
- External GPS antenna connector, when the Thor VM3 is equipped with GPS.
- External WWAN antenna connectors, when the Thor VM3 is equipped with WWAN. Optional WWAN radio (available in North America, Europe, New Zealand, and Australia only).

Components

Front View - Thor VM3

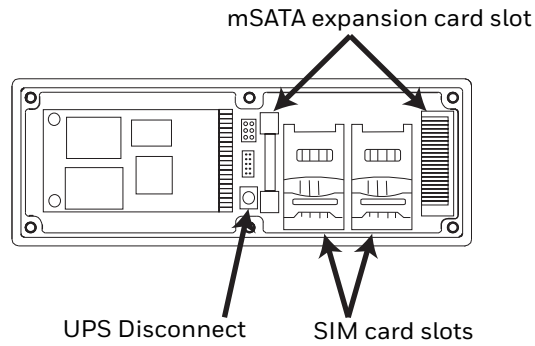


Back View - Thor VM3



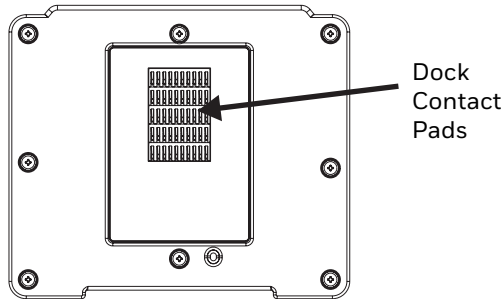
Access Panels - Thor VM3

SIM and mSATA Card Access Panel with door removed



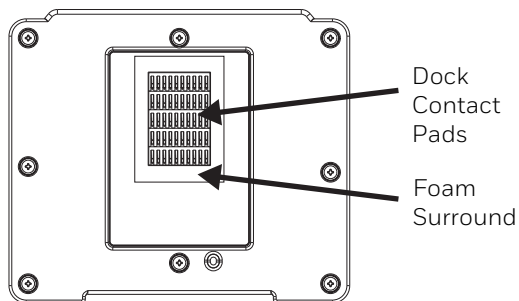
Front View - Dock

Standard Dock



Enhanced Dock

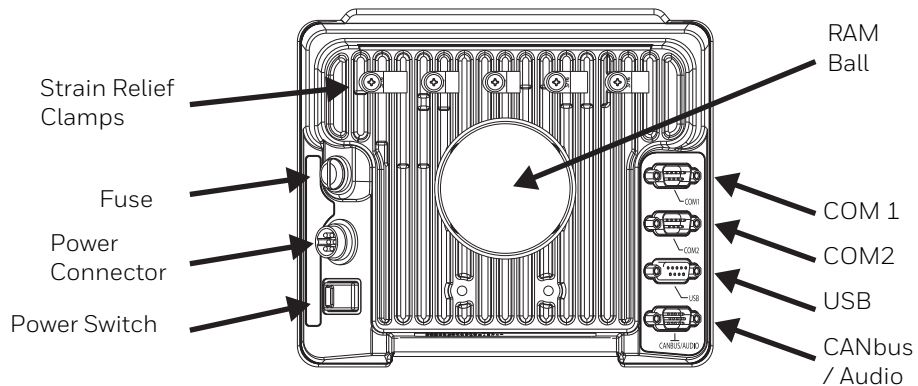
The Enhanced Dock has a foam surround around the dock contact pad.



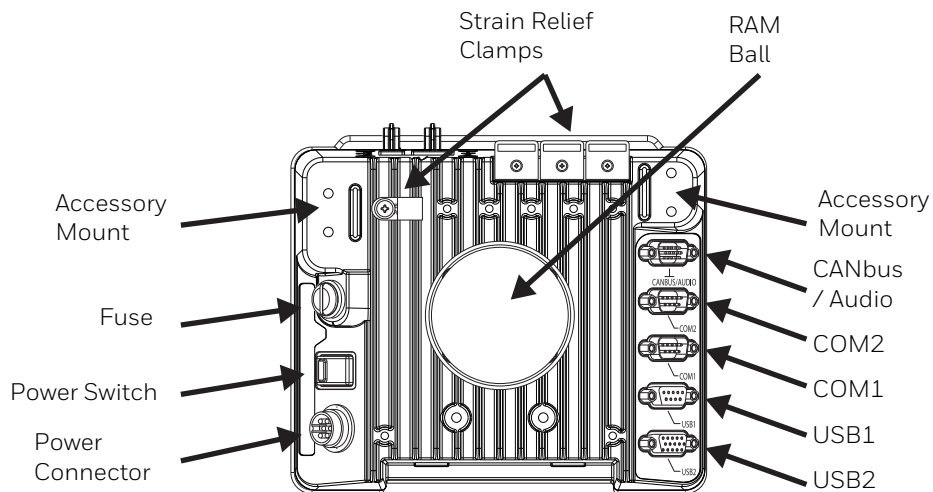
Back View - Dock

The connectors on the back of the dock vary by dock model.

Standard Dock



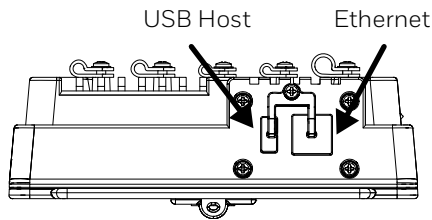
Enhanced Dock



Note: For the VMX Enhanced Dock: COM1 is used for screen blanking (via the power cable connector) and is unavailable when the screen blanking box is attached. When a screen blanking box is attached, any external serial device such as a scanner, must be connected to the COM2 port on the dock. If a screen blanking box is not connected via the power cable, the COM1 port on the dock is available for a serial device

Top View - Enhanced Dock

Only the Enhanced Dock has these connectors on the top. The connectors are located behind water tight plugs.



Backlights and Indicators

Display Backlight

There are several configuration options for the Thor VM3 display backlight:

Power Management

The display backlight is controlled by power management. When the user activity timer expires, the display backlight is turned off. Timeouts can be set for the available power management schemes.

See [Power](#) for configuration options.

Backlight Brightness

The intensity of the display backlight can be manually configured:

1. Press the **Blue** key to enter Blue mode
2. Press the **P5** key to increase backlight brightness or the **P6** key to decrease backlight brightness.
3. Press the **Blue** key to exit Blue mode.

Refer to the [Screen Control](#) panel for the current display brightness level.

Screen Blanking

The Thor VM3 can be configured to blank (blackout) the display while the vehicle is in motion.

Refer to [ZoomZone](#) for information.

Keypad Backlight

By default, the integrated keypad backlight follows the display backlight. The integrated keypad backlight can be disabled.

To change this behavior, see the **Misc** tab of the [Options](#) control panel.

The external USB keyboard backlight is manually controlled.

Speaker Volume

The speaker volume can be adjusted via the Thor VM3 keypad:

1. Press the **Blue** key to enter Blue mode
2. Press the **P1** key to increase speaker volume or the **P2** key to decrease speaker volume.
3. Press the **Blue** key to exit Blue mode.

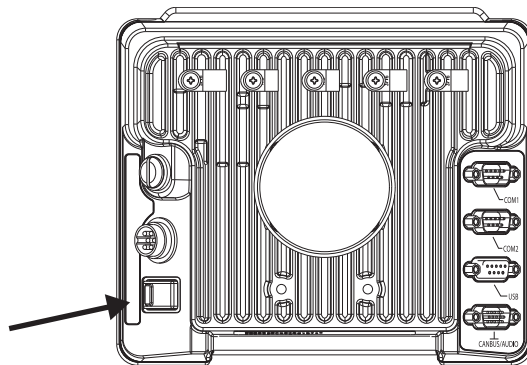
The current volume level can be viewed on the [Mixer](#) control panel. This control panel can also be used to adjust speaker volume.

Power Up

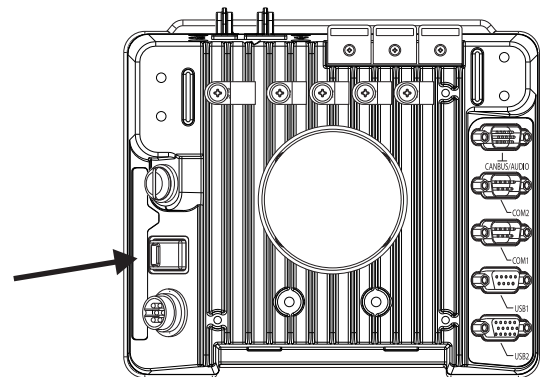


If a USB drive, such as a thumb drive is attached to the Thor VM3, the device may attempt to boot from the USB drive. Remove the USB drive and power up the Thor VM3 again.

The dock has a power switch on the back.



Standard Dock

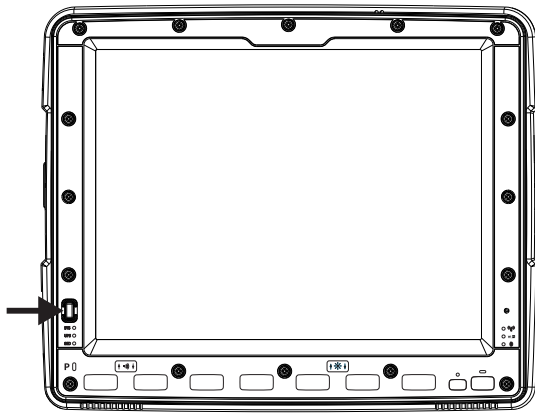


Enhanced Dock

The “On” side of this rocker switch has a raised bump to allow the state of the switch to be determined when the switch may not be easily viewed, for example, after the dock is mounted in a vehicle.

After external power has been connected and the Thor VM3 has been mounted in the dock, press the side of the power switch with the raised bump to pass power from the dock to the Thor VM3.

Next locate the power button on the front of the Thor VM3.



Press the power button to turn the Thor VM3 on. When the Windows desktop is displayed or an application begins, the power up sequence is complete.

After initial power on, the Thor VM3 can be configured to automatically power on. See [Power Controls](#) for more information.

Rebooting the Thor VM3

If a USB drive, such as a thumb drive is attached to the Thor VM3, the device attempts to boot from the USB drive:



- If the USB drive contains a bootable sector, the Thor VM3 boots from the USB drive.
- If the USB drive does not contain a bootable sector, the Thor VM3 does not boot. Remove the USB drive and boot the Thor VM3 again.

Warmboot

A warmboot reboots the Thor VM3 without erasing any registry data. Configuration settings and data in RAM are preserved during a warmboot. Network sessions are lost and any data in running applications that has not been previously saved may be lost. CAB files already installed remain installed.

There are several warmboot methods available:

- Using the Registry, select **Start > Settings > Control Panel > Registry** and tap the **Warmboot** button. The Thor VM3 immediately warmboots.
- Using the Start menu, select **Start > Run** and type WARMBOOT in the text box. Press Enter. The Thor VM3 immediately warmboots. The WARMBOOT text command is not case-sensitive.
- Use the **P1 + P7 + Orange** key press sequence to reboot the Thor VM3. The keys must be pressed in sequence; they do not need to be held down simultaneously.

Restart

A restart reboots the Thor VM3 without erasing any registry data. Configuration settings are preserved during a restart. Network sessions are lost and any data in running applications that has not been previously saved may be lost. The contents of RAM are erased and the operating system and CAB files are reloaded.

To initiate a restart:

- Using the Registry, select **Start > Settings > Control Panel > Registry** and tap the **Restart** button. The Thor VM3 immediately restarts.
- Using the Start menu, select Start > Run and type RESTART in the text box. Press Enter. The Thor VM3 immediately restarts. The RESTART text command is not case-sensitive.

Clearing Persistent Storage / Reset to Default Settings

Use the Registry control panel **Load Factory Defaults** button to set the Thor VM3 registry back to factory defaults. No other clearing is available or necessary.

Tapping the Touch Screen with a Stylus

Note: Always use the point of the stylus for tapping or making strokes on the touch screen.

Never use an actual pen, pencil, or sharp/abrasive object to write on the touch screen.

Hold the stylus as if it were a pen or pencil. Touch an element on the screen with the tip of the stylus then remove the stylus from the screen.

Firmly press the stylus into the stylus holder when the stylus is not in use.

Using a stylus is similar to moving the mouse pointer then left-clicking icons on a desktop computer screen.

Using the stylus to tap icons on the touch screen is the basic action that can:

- Open applications
- Choose menu commands
- Select options in dialog boxes or drop-down boxes
- Drag the slider in a scroll bar
- Select text by dragging the stylus across the text
- Place the cursor in a text box prior to typing in data
- Place the cursor in a text box prior to retrieving data using a scanner/imager.

A right-click can be simulated by touching the touch screen with the stylus and holding it for a short time.

A stylus replacement kit is available.

Setup Terminal Emulation Parameters

The Thor VM3 offers both RFTerm and Enterprise TE. For details on configuring these terminal emulators, refer to the appropriate user's guide at www.honeywellaidc.com.

Cleaning

Cleaning the Thor VM3 and the Dock

Dampen a cloth with the cleaner and then wipe the surface. Do not spray the cleaner directly onto the Thor VM3 or the dock. Avoid harsh chemicals. The following cleaners are recommended:

- Windex® Glass Cleaner
- Formula 409® All-Purpose Cleaner or Glass and Surface Cleaner
- Fantastik® All Purpose Cleaner
- Liquid hand soap

Cleaning the Touch Screen

Note: *These instructions are for components made of glass. If there is a removable protective film sheet on the display, remove the film sheet before cleaning the screen.*

Keep rough or sharp objects away from the Thor VM3 touch screen and, if installed, the bar code reader scanning aperture.

If the glass becomes soiled or smudged, clean only with a standard household cleaner such as Windex® without vinegar or use isopropyl alcohol. Dampen the cloth with the cleaner and then wipe the surface.

Do not use paper towels or harsh-chemical-based cleaning fluids since they may result in damage to the glass surface. Use a clean, damp, lint-free cloth.

Do not scrub optical surfaces. If possible, clean only those areas which are soiled. Lint and particulates can be removed with clean, filtered canned air.

Startup Help

Contact [Technical Assistance](#) if you need more help.

Thor VM3 seems to lockup as soon as it is rebooted.	There may be slight delays while the wireless client connects to the network, authorization for voice-enabled applications complete, and Bluetooth relationships establish or re-establish. When an application begins, the Thor VM3 is ready for use.
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System Hardware

802.11a/b/g/n Wireless Client

The Thor VM3 has an 802.11a/b/g/n network card that supports diversity with two internal or external antennas. Power management for the network card is configured with the [WLAN Wireless Configuration Utility \(WCU\)](#).

Central Processing Unit

The CPU is a 1.5 GHz Dual Core Intel Atom processor.

The operating system is Microsoft Windows Embedded Compact 7.

The OS image is stored on an internal mSATA memory card and is loaded into DRAM for execution.

Input/Output Components

The Thor VM3 supports the following I/O components of the core logic:

- Two 9-pin RS-232 serial ports, COM1 and COM2, on dock.
- One slot for mSATA card for operating system storage.
- Second slot for mSATA memory card for storage expansion.
- Integrated keyboard with programmable keys.
- Ports available via adapter cables on dock: USB host port, CANbus, Audio. Direct connections on Enhanced Dock: Ethernet and USB host.

System Memory

Main system memory is 2 or 4 GB SDRAM.

Video Subsystem

The Thor VM3 video subsystem consists of a color TFT display. The video subsystem complies with the VESA VL bus standard. The resolution of this display is 800 x 600 or 1024 x 768 pixels. This resolution complies with the SVGA graphics industry standard.

The display supports screen blanking to eliminate driver distraction when the vehicle is in motion.

Audio Interface

Speakers are located on the bottom front of the Thor VM3. A headset adapter cable provides a connection for headset operation. When a headset is plugged into the adapter cable, the main speakers are disabled.

A microphone is located at the upper right of the Thor VM3 display, near the Thor VM3 emblem. When a headset is plugged into the adapter cable, the internal microphone is disabled.

Card Slots

mSATA Slots

There are two mSATA slots. The lower slot contains an mSATA card loaded with the operating system.

The upper slot is available for a user installable mSATA card for storage expansion.

Bluetooth

The Thor VM3 contains Bluetooth version 2.0 with Enhanced Data Rate (EDR) up to 3.0 Mbit/s over the air. Bluetooth device connection (or pairing) can occur at distances up to 32.8 ft (10 meters) Line of Sight. The wireless client retains wireless connectivity while Bluetooth is active.

The user cannot select PIN authentication or encryption on connections from the Thor VM3. However, the Thor VM3 supports authentication requests from pairing devices. If a pairing device requests authentication or encryption, the Thor VM3 displays a prompt for the PIN or passcode. Maximum encryption is 128 bit. Encryption is based on the length of the user's passcode.

Bluetooth simultaneously supports one printer as a slave Bluetooth device and one scanner, either as a slave or as a master Bluetooth device.

- The LED on the Bluetooth scanner illuminates during a scanning operation.
- Multiple beeps may be heard during a bar code scan using a mobile Bluetooth scanner. The mobile Bluetooth scanner may beep as the bar code data is accepted/rejected and the Thor VM3 may beep during final bar code data manipulation.

WWAN (Wireless Wide Area Networking) is available on the Thor VM3. Two slots are provided for SIM cards.

Power

Vehicle DC Power Supply



Caution: Vehicle DC power supply connections require a DC-compatible Dock.

Vehicle power input for the Thor VM3 dock is 10V to 60V DC and is accepted without the need to perform any manual operation within the Thor VM3 dock, see [12-48 VDC Vehicles \(10-60 VDC Direct Connection\)](#). The dock provides a conditioned power output for the Thor VM3. By using a specified DC/DC power supply, input voltage of 50-150V DC can be accepted, see [60-144 VDC Vehicles \(50-150 VDC Power Supply, Screws on Top of Lid\)](#) or [60-144 VDC Vehicles \(50-150 VDC Power Supply, Screws on Top of Lid\)](#).

Power input is fused for protection and the fuse is externally accessible, see [Fuse](#).

External AC Power Supply

If DC power is not available – for example, in an office environment – an optional external Universal Input Power Supply can be used to convert AC wall power to an appropriate DC level. AC to DC power input for the Thor VM3 is delivered to the dock via an optional external power supply and adapter cable. See [External AC/DC Power Supply](#).

Uninterruptible Power Supply

The Thor VM3 contains an internal UPS battery.

The UPS battery is automatically charged when the Thor VM3 is placed in a powered dock, provided the safe charging temperature conditions below are met.

When external power is removed, the UPS automatically powers the Thor VM3 with no user intervention. When running on UPS power, the power management timeouts may be different than when vehicle power is applied.

The UPS allows the Thor VM3 to continue operation when not mounted in a dock or when the vehicle battery is being swapped. When fully charged the UPS battery is designed to power the Thor VM3 for a minimum of 30 minutes at temperatures of -30°C (-22°F) or greater.

If operating on UPS power and the UPS battery becomes critically low, the Thor VM3 performs a controlled shutdown.

If there is no external power available, there must be 35% or greater power in the UPS battery or the Thor VM3 does not power on.

The UPS status LED and the Battery Control Panel can be used to monitor the state of the UPS battery.



Safety requirements restrict the temperature at which the Li-Ion UPS battery can be charged. Charging is disabled if the ambient temperature is outside of the 0°C to 35°C safe charging range. In order to maintain UPS charge the Thor VM3 should have power applied while the unit is within the safe charging range for at least an hour each day.

Safe Charging Temperature Range

The temperature of the Thor VM3 is the trigger for UPS battery charging.

- The UPS battery is not charged when the ambient (room) temperature is below -30°C (-22°F).
- The UPS battery is not charged when the ambient (room) temperature is above 50°C (122°F).
- Move the Thor VM3 to a different location to charge the UPS battery.

When the Thor VM3 is operated in an environment where the UPS battery is not able to charge due to temperature extremes, the Thor VM3 should be removed to a location within the safe charging temperature range during off hours. A discharged UPS battery cannot protect against data loss in the event vehicle power is interrupted.

Charging Timeout

- A fully discharged UPS battery normally recharges in less than 4 hours when the Thor VM3 is in a powered dock and within the safe charging temperature range.
- If the UPS battery is not charged before an 8 hour timeout period expires, the [UPS Status LED](#) then flashes super-fast red.
- If the charge timeout occurs, remove the Thor VM3 from the dock and [Disconnect UPS Battery](#). Reinstall the Thor VM3 in the dock and power on.

Charging and Power Management

- Charging does not occur when the Thor VM3 is in ignition mode and the ignition is inactive.
- Charging of the UPS battery continues when the Thor VM3 is in power management (user idle, system idle or suspend modes).

Backup Battery

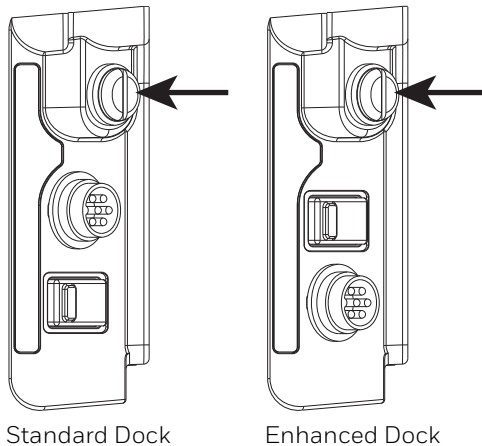
The Thor VM3 has a permanent Lithium battery installed to maintain time, date and CMOS setup information for a minimum of 90 days. The lithium battery is not user serviceable and should last four years with normal use before it requires replacement.



Warning: Improper replacement or repair could damage the battery, cause overheating, risk of explosion, and result in injury. The battery should be disposed of properly. The battery should not be disassembled or crushed. The battery should not be heated above 212 ° F(100 ° C) or incinerated. The battery must be recycled or disposed of separately from household waste.

Note: *The backup battery should only be changed by authorized service personnel.*

Fuse



The Thor VM3 uses an 8A time delay (slow blow) fuse that is externally accessible and user replaceable. The fuse is located on the back of the dock. The fuse is accessed by unscrewing the cap as indicated.

Should it need replacement, replace with same size, rating and type of fuse:

- **Littelfuse 0215008.MXP**
- **Cooper Bussmann BK1/S506-8-R**
- **Bel Fuse 5HT 8-R**

or equivalent.

Fuse has voltage on it even when power is off. Always disconnect input power before changing the fuse.

Power Management Modes

On Mode (D0)

When the Thor VM3 is attached to either vehicle power or an external power supply or is operating from the UPS battery and the power button is pressed, the Thor VM3 is in the On mode. In this mode, the keypad, touch screen and any attached peripherals such as a scanner function normally. The display remains on until the backlight timer (if enabled) expires.

User Idle / Backlight Off Mode (D1)

Backlight is dimmed, but display is readable. The Thor VM3 transitions to this mode from On after the User Idle timeout period has passed without a primary event occurring.

System Idle / Display Off Mode (D2)

Backlight and display are off. The status LED is solid green. The Thor VM3 transitions to this mode from User Idle after the System Idle timeout period has passed without a primary event occurring.

Suspend mode (D3)

All devices that are not configured as wakeup events are powered off. The status LED is blinking green if external power is connected and off if external power is not connected. The Thor VM3 transitions to this mode from System Idle after the Suspend timeout period has passed without a primary event occurring.

By default power is turned off to the USB port when the Thor VM3 is in Suspend. The Thor VM3 can be configured to provide power to the USB port in Suspend using the [Options](#) control panel.

Additionally the power button can be used to enter or exit Suspend mode:

- If the Thor VM3 is On, pressing the power button immediately transitions the unit to Suspend.
- If the Thor VM3 is in Suspend mode, pressing the power button transitions the unit to On.

Shutdown / Off Mode (D4)

The Thor VM3 shuts down when the Thor VM3 is operating on power and the UPS battery becomes critically low regardless of the current power management state. The Thor VM3 remains Off until external power is applied. The Thor VM3 may restart automatically when external power is applied or may require the user to press the Power button depending on installation and configuration.

The Thor VM3 transitions to Off mode from Suspend after the Shutdown timeout period has passed without a primary event occurring. If the Thor VM3 has external power applied or a sufficiently charged UPS battery the Thor VM3 may restart automatically or may require the user to press the Power button depending on installation and configuration.

A Real Time Clock (RTC) powered by an internal battery maintains the date and time while the Thor VM3 is off.

Primary Events

User Primary Events

A User Primary Event transitions the Thor VM3 to D0 (On) mode. When no user event happens for the specified time period, the Thor VM3 transitions to D1 (User Idle), then D2 (System Idle) and then D3 (Suspend). Timeout periods are set via the Schemes tab in the Power control panel.

User primary events include:

- Any key press on the integrated keypad or external USB keyboard

- Touch on the touch screen

System Primary Events

A System Primary Event allows the Thor VM3 to transition to D2 (System Idle) but the Thor VM3 does not enter D3 (Suspend) as long the system event occurs.

System primary events include:

- Serial data transfer
- USB data transfer

Wake Source Events

These events wake the Thor VM3 from suspend:

- Power button
- Touch on the touch screen
- External power connection (AC/DC, Auto-On, Ignition Control/Ignition On power modes only)
- USB client connection
- Ignition (switched from Off to On, Ignition Control/Ignition Off power mode only)
- RTC
- Serial port CTS control line
- Headset connection (this is not enabled by default, but can be configured to wake the Thor VM3)

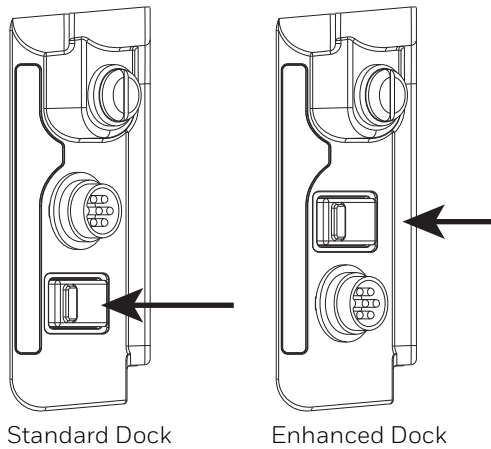
Events generated by these actions are not processed. For example, the touch screen tap that wakes the Thor VM3 is ignored.

The following events DO NOT wake the Thor VM3 from suspend:

- Bluetooth keyboard or mouse
- Bluetooth connection
- USB client disconnect
- USB host data (unless enabled via API)
- USB host connection
- SDIO interrupt
- Serial data
- 802.11 radio
- External power disconnect

Power Controls

Power Switch



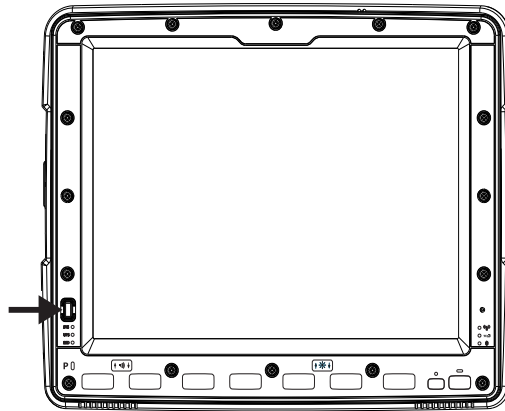
After all cables are connected, the Thor VM3 can be powered on.

There is a power switch located on the back of the dock. The power switch is a rocker switch.

The power switch has a raised bump to identify the switch position even when it is hidden from view. When the side of the switch with the raised bump is pressed, the power switch is On. If the dock is connected to external power, the dock delivers power to the Thor VM3.

Generally, once the dock is powered On, there is no need to power it off. The dock power can remain On even when the Thor VM3 is not attached.

Power Button



The power button is located at the lower left of the Thor VM3.

If the Thor VM3 is Off, pressing the power button starts the power up sequence.

Note: *This assumes that the Thor VM3 is docked in a powered dock or that the internal UPS battery has a sufficient charge to power the Thor VM3. If no external power is available and the UPS battery does not have a charge, pressing the power button causes no action.*

If the Thor VM3 is On, pressing the power button places the unit in Suspend.

Power Configuration Mode

The Power Configuration Mode control panel is used to select desired power configuration behavior.

Please refer to the [Power Configuration Mode](#) control panel for complete details.

For information on the Ignition input signal see [Vehicle 10-60VDC Direct Power Connection](#) and [Auto-On Control Wiring Diagram](#).

AC/DC

The Thor VM3 is designed to power on whenever external power is attached. Due to the presence of external power, longer default power management timeouts are used.

Ignition Control

The Thor VM3 is configured to power on when the vehicle ignition is switched on. When the vehicle ignition is on, longer default power management timeouts are used. If the vehicle ignition is turned off, shorter default power management timeouts are used.

Auto-On

The Thor VM3 is designed to power on whenever external power is attached. Due to the presence of external power, longer default power management timeouts are used.

UPS

The Thor VM3 uses the UPS mode whenever external power is not available. Due to the absence of external power, much shorter default power management timeouts are used.

External Connectors

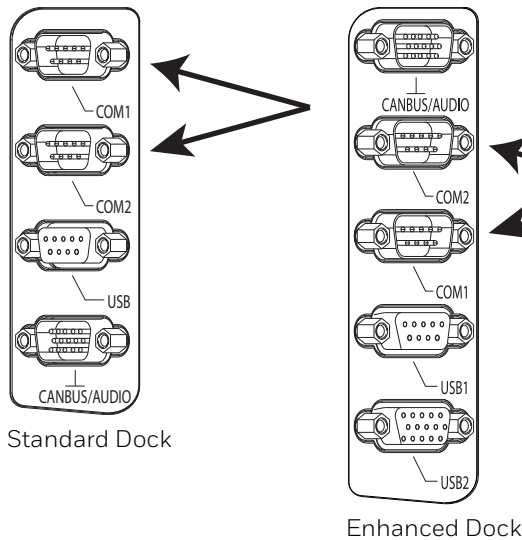
Power the Thor VM3 off before attaching a cable to any port (serial, USB, Audio/CAN, etc.).

The external I/O connectors for the Thor VM3 are located on the right side of the dock (when viewed from the back).

The [Power Supply Connector](#) is on the left side of the dock (when viewed from the back).

Antenna connectors are located on the top rear of the Thor VM3.

Serial Connector (COM1 and COM2)



The COM1 and COM2 connectors are D-9 male connectors located on the back of the dock.

Power the Thor VM3 off before attaching a cable to any port (serial, USB, Audio/CAN, etc.).

The serial connectors are industry-standard RS-232, PC/AT standard 9-pin “D” male connector. See [COM1 and COM2 Connector](#) for connector pinout detail.

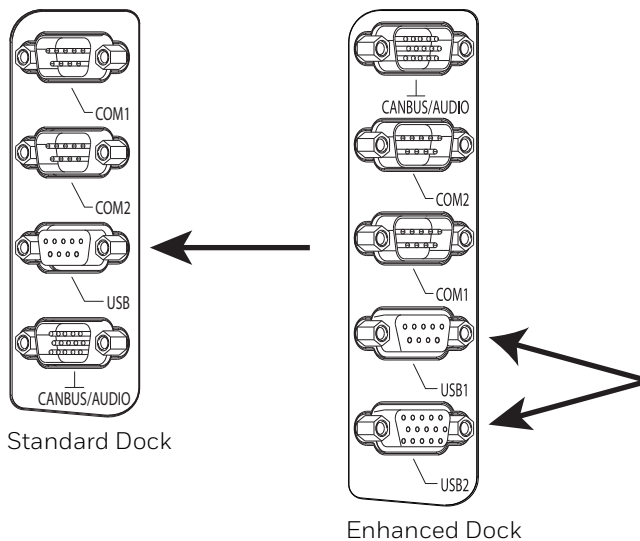
See [Connect Serial Device](#) for more information.

If a COM port is not being used for a scanner, it can be used for [Screen Blanking](#) when the vehicle is in motion.

Screen Blanking

The screen blanking signal can be provided either by a Honeywell Screen Blanking Box or a user supplied switch or relay. See [Screen Blanking](#) for information on connecting screen blanking accessories.

USB Connector(s)

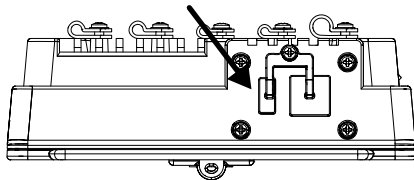


The USB or USB1 connector is a D-9 female connector located on the back of the dock. See [USB and USB1 Connector](#) for connector pin-out detail.

The USB-2 connector is a D-15 female connector located on the back of the dock. See [USB2 Connector](#) for connector pinout detail.

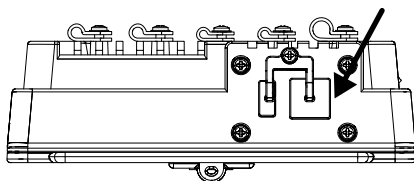
Power the Thor VM3 off before attaching a cable to any port (serial, USB, Audio/CAN, etc.).

An additional USB host port is located on the top of the Enhanced Dock. Lift the cover to access the USB port.

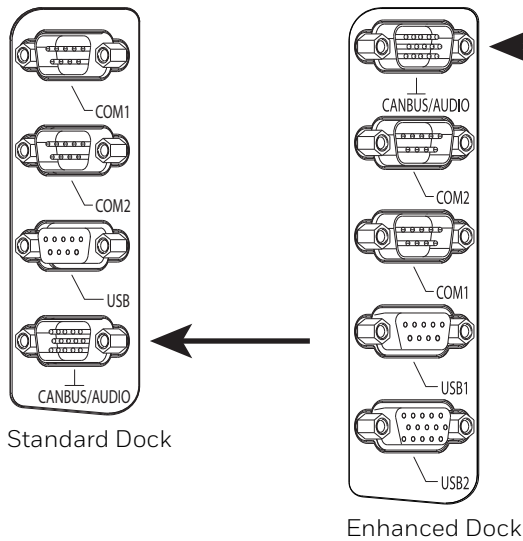


Ethernet Connector

An Ethernet port is located on the top of the Enhanced Dock. Lift the cover to access the Ethernet port.



CANbus / Audio Connector



The CANbus/Audio connector is a D-15 male connector located on the back of the dock.

The connector supports a headset adapter cable or a CANbus cable. The Thor VM3 does not support connecting audio and CANbus simultaneously.

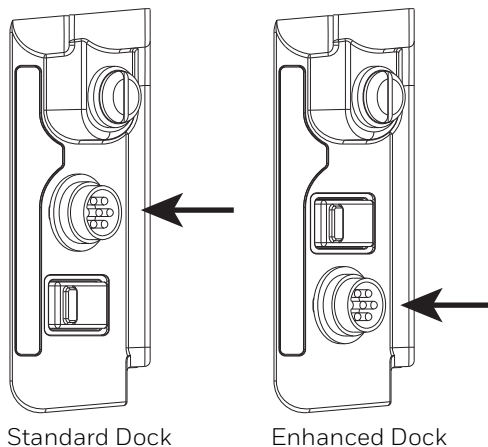
See [CANbus / Audio Connector](#) for connector pinout detail.

A headset cable attaches to the CANbus / Audio connector and provides a quick connect connection for a headset. See [Connect Headset Cable](#) for more information.

The CANbus Y cable has a 9 pin F SAE J1939 (Deutsch) and 9 pin M SAE J1939 (Deutsch) connector. See [Connect CANbus Cable](#) for more information.

The CANbus interface is a virtual COM port. This port can be accessed using standard Windows API calls.

Power Supply Connector

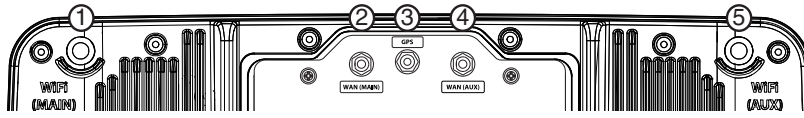


Power is supplied to the Thor VM3 through the power connector. Additionally this assembly provides a connection point for the vehicle's chassis ground to be connected internally to the conductive chassis of the computer.

The Thor VM3 internal power supply can accept DC input voltages in the range of 10 to 60 Volts DC when using the VM1D standard dock or VM3D enhanced docks. Other docks have different power requirements. See [Dock](#) for details.

See [Power Supply Connector](#) for connector pinout detail. See [Connect Power](#) for more information on connecting power to the Thor VM3.

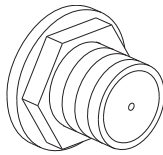
Antenna Connections



The Thor VM3 is equipped with an 802.11 radio and can be ordered with internal antennas, external antennas or external remote mount antennas. When the Thor VM3 is ordered with internal antennas, the external antenna connectors are not used. GPS and WWAN are optional on the Thor VM3 and require external remote mount antennas.

1. WI-FI (MAIN) 802.11 Main External Antenna Connector
2. WAN (MAIN) (Blue label) Main WWAN Antenna Connector
3. GPS (Green label) GPS Antenna Connector
4. WAN (AUX) (Blue label) Auxiliary WWAN Antenna Connector
5. WI-FI (AUX) 802.11 Auxiliary External Antenna Connector

External Antenna Connector



When the Thor VM3 is ordered with the internal antenna option, the 802.11 antenna connectors on the back are not connected to the 802.11 radio. Instead the internal antenna connector is connected to the 802.11 radio.

Remove the rubber cap, if present, from the antenna connector before connecting an external antenna.

Internal 802.11 Antenna

If the internal 802.11 antenna option is ordered, antennas are mounted inside the Thor VM3. The internal antennas are not user accessible.

Vehicle Remote Antenna

The external antennas can be remotely mounted on the vehicle. See [Install Remote Antenna](#) for instructions. External antenna kits are available for the 802.11 Wi-Fi radio, GPS and WWAN.

Keyboard Options



The integrated keypad contains seven programmable keys, a blue modifier key and an orange modifier key.

The **P1** through **P7** keys are user programmable.

- When used with no modifier key, **P1** through **P7** can be configured for a user programmable function.
- When used with the **Orange** modifier key, **P1** through **P7** provide secondary programmable keys, **P8** through **P14**, and can be configured for a user programmable function.
- The programmable keys can be remapped to provide a single keypress, a string of keypresses or to execute an application or command. Key remapping is configured via the [Keyboard Remapper](#) option in the Control Panel.
- Programmable keys persist across a warmboot or power cycle.
- When used with the **Blue** modifier key, **P1** and **P2** keys are used to adjust speaker volume and **P5** and **P6** keys are used to adjust display brightness.

The Thor VM3 integrated keypad is backlit.

- By default, the integrated keypad backlight follows the display backlight. When the display backlight is on, the integrated keypad backlight is on.
- If the display backlight brightness is increased (or decreased) the integrated keypad backlight brightness does not change.
- The integrated keypad backlight and the display share the same timer, which is configured in the [Power](#) control panel.
- The integrated keypad backlight can be disabled via the Misc tab of the [Options](#) control panel.

Keypad LEDs

See [Keyboard LEDs](#) for details.

USB Keyboards

Two Honeywell ruggedized USB keyboards are available, 95-key alphanumeric and 21-key numeric.

95-Key USB Keyboard

The 95-key USB keyboard may have any of the following markings on the decal on the back of the keyboard:

- **164288-0001**
- **95 KEY USB**
- **9000160KEYBRD**

If the keyboard looks similar but has a different part number refer to [95-key PS/2 Keyboard](#).

If the keyboard is labeled as **164288-0001 Revision B** (or greater) the keyboard has sticky keys for Alt, Ctrl and Shift. These keys will remain active for the next keypress. Earlier versions of this keyboard (Revision A) do not have sticky keys implemented.



The Thor VM3 uses an optional rugged QWERTY 95 key keyboard, designed for ease of use with the Windows operating system. The USB keyboard connects directly to the D9 USB connector (Standard Dock) or USB1 connector (Enhanced Dock).

- The 95 key keyboard supports all 104 keyboard functions (101 standard keyboard plus Windows keys) and includes an integrated pointing device and left and right mouse buttons. However, because the keyboard only has 95 keys, all functions are not visible (or printed on the keyboard). Therefore the keyboard supports what is called hidden keys - keys that are accessible but not visible on the keyboard.
- The 95 key keyboard keys are backlit. The keyboard backlight is manually controlled.

Keyboard Backlight

The keyboard backlight key in the top right hand corner has a light bulb icon.

The keyboard keys are backlit. The keyboard backlight is manually controlled using the backlight key in the upper right hand corner of the keyboard. Pressing the backlight key cycles the keyboard backlight through the levels of backlight intensity: Off, Low intensity, Medium intensity, Maximum intensity, Off, etc. When the Thor VM3 is powered on, the keyboard backlight defaults to Off.

Since the keyboard is a USB device, by default the external keyboard backlight is turned off when the Thor VM3 enters Suspend. This behavior can be changed by enabling USB power in Suspend on the Misc tab of the [Options](#) control panel.

21-key Numeric Keypad

A numeric keypad is available for the Thor VM3 in applications where a full keyboard may not be needed. The USB keyboard connects directly to the D9 USB connector (Standard Dock) or USB1 connector (Enhanced Dock).



Keyboard Backlight

The keyboard backlight key has a light bulb icon.

The keyboard keys are backlit. The keyboard backlight is manually controlled using the backlight key in the upper right hand corner of the keyboard. Pressing the backlight key cycles the keyboard backlight through the levels of backlight intensity: Off, Low intensity, Medium intensity, Maximum intensity, Off, etc. When the Thor VM3 is powered on, the keyboard backlight defaults to Off.

Since the keyboard is a USB device, by default the external keyboard backlight is turned off when the Thor VM3 enters Suspend. This behavior can be changed by enabling USB power in Suspend on the Misc tab of the [Options](#) control panel.

The PF key can be programmed using the [Keyboard Remapper](#) control panel.

PS/2 Keyboards

Legacy PS/2 keyboards can be used with the Thor VM3 via a USB to PS/2 adapter cable. PS/2 keyboards are available in 60-key and 95-key versions and were used with the VX6, VX7, Thor VX8 or Thor VX9.

Note: *The PS/2 adapter cable does not work with the Thor VM3 and the VM1D Standard Dock. The PS/2 adapter cable works with either the VM3D or VMXD Enhanced Docks.*

95-key PS/2 Keyboard

The 95-key PS/2 keyboard may have any of the following markings on the decal on the back of the keyboard:

- **160491-0001**
- **95 KEY PS-2**
- **9000154KEYBRD** (also available as **VX89154KEYBRD**)

If the keyboard looks similar but has a different part number refer to [95-Key USB Keyboard](#).

An adapter cable is required to attach this keyboard to the Thor VM3. See [Connect PS/2 Keyboard](#) for details.

Note: *If the keyboard was previously used with Thor VX8 or Thor VX9, the adapter cable for the Thor VX8/VX9 is not used. The new PS/2 to USB adapter cable must be used.*



This keyboard is visually similar to the USB external keyboard.



The mouse pointer function on the PS/2 keyboard is not available when connected via an adapter cable to the Thor VM3.

Key Maps

The 95-key keyboard supports all 104 keyboard functions (101 keyboard standard plus Windows keys) and includes an integrated pointing device and left and right mouse buttons. However, because the keyboard only has 95 keys, all functions are not visible (or printed on the keyboard). Therefore the Thor VM3 keyboard supports what is called hidden keys -- keys that are accessible but not visible on the keyboard. Refer to [External 95-Key Keyboard](#) for keymaps.

NumLock

For the 95-key PS/2 keyboard, the NumLock key and the numeric keys are backlit green when NumLock is off. When NumLock is on, the backlight for the NumLock key and the numeric keys is amber.

CapsLock and Scroll Lock

For the 95-key PS/2 keyboard, the **CapsLock** key is backlit green when CapsLock is off. When CapsLock is on, the backlight for the CapsLock key is amber.

The **Scroll Lock** key is backlit green when Scroll Lock is off. When Scroll Lock is on, the backlight for the Scroll Lock key is amber.

The default values for CapsLock and Scroll Lock are Off.

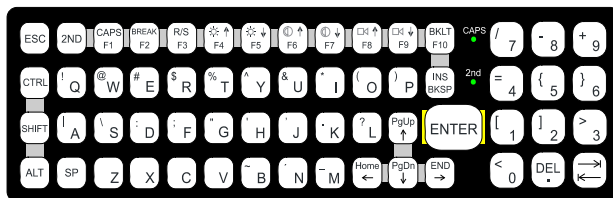
Keyboard Backlight

The keyboard keys are backlit. The keyboard backlight is manually controlled using the backlight key in the upper right hand corner of the keyboard. Pressing the backlight key cycles the keyboard backlight through the levels of backlight intensity: Off, Low intensity, Medium intensity, Maximum intensity, Off, etc.

60-key PS/2 Keyboard

The 60-key PS/2 keyboard is part number **160068-0001** (see decal on back of keyboard).

An adapter cable is required to attach this keyboard to the Thor VM3. See [Connect PS/2 Keyboard](#) for details.



The 60-key keyboard has 101 keyboard functions, including a numeric keyboard pad.

Key Maps

The 60-key keyboard supports all 101 keyboard functions. However, because the keyboard only has 60 keys, all functions are not visible (or printed on the keyboard). Therefore the Thor VM3 keyboard supports what is called hidden keys - keys that are accessible but not visible on the keyboard.

On standard keyboards many keys are found in the Alphanumeric section as well as on the Numeric keypad (i.e. the 1 key is found on the numeric keypad and above the alpha characters on standard keyboards). However these keys send distinctly different scan codes when the keys are pressed. The default codes for the Thor VM3 number keys correspond to the numeric keypad on standard keyboards. In order to duplicate the codes sent when the alphanumeric key is pressed, the hidden keystroke must be used.

Refer to [External 60-Key Keyboard](#) for keymaps.

NumLock

The 60-key keyboard does not have a NumLock indicator or key. NumLock can be toggled On or Off using the **2nd SHIFT F10** keypress sequence.

Keyboard Backlight

The keyboard keys are backlit with LEDs. The backlight is manually controlled using the **2nd + CTRL + F10** keypress sequence. The keyboard backlight is off when the Thor VM3 is powered up. The backlight must be manually turned on with the **2nd + CTRL + F10** key sequence.

Control Keys

The VMT keyboard has several control keys. Because of the construction of the Thor VM3 and the Microsoft Windows operating system, many of the Control Keys are not used on the Thor VM3.

- The **2nd** functions of the **F4** and **F5** keys are not used as the display brightness is adjusted via the buttons on the Thor VM3.
- The **2nd** functions of the **F6** and **F7** keys are not used as the Thor VM3 has TFT LCD screen with no provision for contrast adjustments.
- The **2nd** functions of the **F8** and **F9** keys are not used as the sound volume on the Thor VM3 is controlled with the Sound icon in the Microsoft Windows System Tray.
- The **F10** key is used to toggle the backlight as part of the keypress sequence **2nd + CTRL + F10**. This key sequence immediately toggles the status of the keyboard backlight. Pressing **2nd + F10** has no effect on the keyboard backlight.

Keyboard LEDs

CAPS LED

This LED indicates the state of the keyboard CapsLock mode. If CapsLock is enabled this LED is illuminated green. When CapsLock is off, the LED is dark.

Press **2nd** then **F1** to toggle CapsLock On and Off.

The default value of CapsLock is Off.

Secondary Keys LED

The VMT keyboard is equipped with several secondary keys. These keys are identified by the superscripted text found on the keyboard keys. The secondary keys are accessible by using two (2) keystrokes: the **2nd** key followed by the superscripted key.

Once the 2nd state is enabled (by pressing the **2nd** key) the Secondary Mode LED is illuminated and the 2nd state is enabled until another key is pressed. The **2nd** key is toggled on with a **2nd** keypress and then immediately off with another **2nd** keypress.

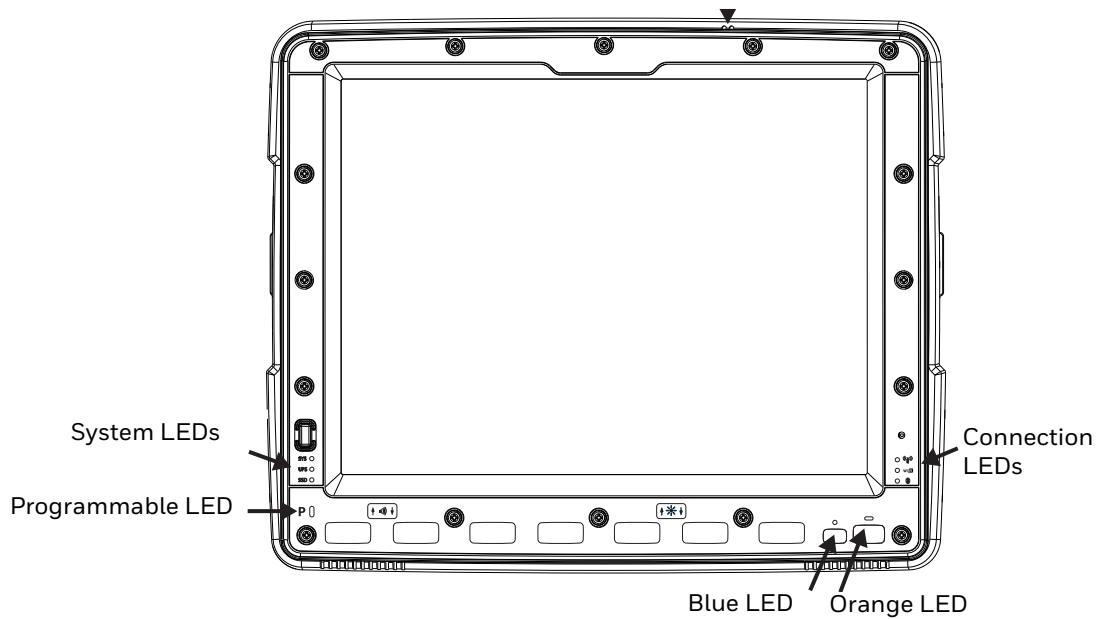
- Press **2nd** and **F1** to turn CapsLock on and off.
- Press **2nd** and ? (up arrow) to initiate the PgUp command.
- Press **2nd** and **Q** to type the “!” key.
- Press **2nd** and **BkSp** to enter the Insert (Ins) mode.

USB Keyboard / Mouse

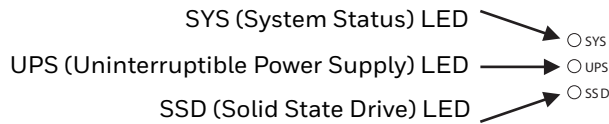
A standard USB keyboard or mouse can be attached to the Thor VM3 using the appropriate adapter cable.

The Y cable attaches to the Thor VM3 and provides a USB connector. Please refer to documentation provided with the USB keyboard or mouse for more information on their operation.

LED Functions



System LEDs



SYS (System Status) LED

LED Behavior	System State
Solid Green	<ul style="list-style-type: none"> On On but Backlight Off On but Display Off
Green blinking very slowly External power present (1/2 sec. on, 4 1/2 sec. off)	<ul style="list-style-type: none"> Suspend
Off External power present	<ul style="list-style-type: none"> Off
Off External power not present	<ul style="list-style-type: none"> Suspend Off
Off External power not present	<ul style="list-style-type: none"> SuspendOff

UPS Status LED

The color of the UPS LED identifies the charge level, while the behavior of the LED identifies the charging state.

Charge Level

LED Color	Status
Green	Fully charged (>90%)
Amber	Less than fully charged, but more than 2 minutes runtime remaining
Red	Low battery, less than 2 minutes runtime until shutdown

Charging State

LED Behavior	Status
Slow Blink (1 sec. on, 3 sec. off)	Charging
Fast Blink (1/2 sec. on, 1/2 sec. off)	UPS supplying power and discharging
On	Neither charging or discharging
Off	Unit is off or is in Suspend

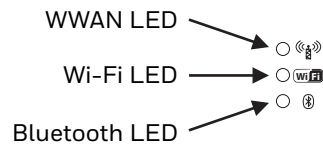
UPS Unavailable

LED Behavior	Status
Super-Fast Blink (1/8 sec. on, 1/8 sec. off)	<ul style="list-style-type: none">• Out of charging temperature range• Charge timeout• UPS is not installed

SSD (Solid State Drive) LED

LED Behavior	Status
Flashing Green	SSD read or write activity
Off	No SSD read or write activity

Connection LEDs



WWAN LED

LED Behavior	Status
Solid Green	Indicates a WWAN connection to a network
Off	Indicates no WWAN connection

Wi-Fi LED

LED Behavior	Status
Solid Green	Indicates a connection with an IP address to an Access Point
Off	Indicates no connection to an Access Point

Bluetooth LED

LED Behavior	Status
On	Bluetooth hardware is on
Off	Bluetooth hardware has been turned off

Keyboard LEDs

The keyboard LEDs are located near the specified key.

Blue LED

LED Behavior	Status
Solid Blue	<ul style="list-style-type: none">Indicates the Blue modifier key is activePressing the Blue key a second time exits this modifier mode and turns off the LEDPressing the Orange key exits the Blue mode and turns off the Blue LEDWhen Blue mode is active, keys P1 and P2 provide volume adjustment and keys P5 and P6 provide brightness adjustment functions
Off	Blue mode is not invoked

Orange LED

LED Behavior	Status
Solid Orange	<ul style="list-style-type: none">Indicates the Orange modifier key is active. Orange mode is invoked for the next keypress onlyPressing the Orange key a second time exits this modifier mode and turns off the LEDPressing the Blue key exits the Orange mode and turns off the Orange LED
Off	Orange mode is not invoked.

Programmable LED

The Programmable LED is available for user applications. The LED defaults to Off unless activated by user application.

The LED behavior is controlled by the `NLedDriverSetDevice` API.

Display

The display is a thin-film transistor display capable of supporting SXGA graphics modes. Display size is 1024x768 pixels. The display covering is designed to resist stains. The display supports screen blanking to eliminate driver distraction when the vehicle is in motion.

Touch Screen

The touch screen is a Resistive Panel with a scratch resistant finish that can detect touches by a stylus, and translate them into computer commands. In effect, it simulates a computer mouse. Only Delrin or plastic styluses should be used. A right mouse click is simulated by touching and holding the screen for the appropriate time interval.

When a dialog box is too large for the display, tap and drag the dialog box up or down or from side to side to view the remainder of the dialog box.

Always use the point of the stylus for tapping or making strokes on the display. Never use an actual pen, pencil, sharp or abrasive object to write on the touch screen.

An extra or replacement stylus may be ordered.

A replaceable touch screen protective film is available when the Thor VM3 is used in an abrasive environment. Contact [Technical Assistance](#) for availability.

Note: *If the touch screen is disabled or loses calibration on a Thor VM3, you must use a USB mouse or keyboard attached to the Thor VM3 to access the control panel to re-enable or recalibrate the touch screen unless a programmable key has been assigned to that function.*

Touch Screen Defroster

Extended temperature versions of the Thor VM3 contain a touch screen defroster. The touch screen defroster can be disabled when not needed via the [Peripherals](#) control panel. The defroster trip point is configurable. The defroster is always disabled when the device is operating from UPS battery power.

Screen Blanking

Screen blanking (blackout) can be enabled when the vehicle is in motion. See [Screen Blanking](#) for hardware setup and [Screen Control](#) for software setup to enable screen blanking. Once screen blanking is enabled, the display is blanked out any time when the cable sends the signal that the vehicle is in motion. If the cable is removed, screen blanking is disabled and the display remains on.

Display Backlight Control

The display brightness on a Thor VM3 equipped with an outdoor display can be configured to automatically adjust depending on the ambient light level via [Screen Control](#).

Note: *When automatic brightness control is enabled, the user can still manually adjust brightness. However, automatic brightness control continues to adjust display brightness if the ambient lighting level changes.*

The display brightness can be adjusted manually, via the keypad:

1. Press the **Blue** key to enter Blue mode.
2. Press **P5** to increase brightness or **P6** to decrease brightness.
3. Press the **Blue** key to exit Blue mode.

VEHICLE MOUNTING AND ACCESSORY INSTALLATION

Introduction



Warning: The correct dock must be selected for the installation:

- For a vehicle installation with 10-60 VDC direct connection: Use either a VM1D standard dock or a VM3 enhanced dock.
- For a vehicle installation with 60-144 VDC connection: Use a DC/DC power supply with either a VM1D standard dock or a VM3 enhanced dock.
- To replace a Thor VX8 or Thor VX9: Use the existing power supply and wiring with a VMXD enhanced dock.
- To replace a VX6, VX7 or CV61: Use the appropriate adapter cable and either a VM1D standard dock or a VM3 enhanced dock. Voltage must be 10-60 VDC.
- For an AC powered application: Use an AC/DC power supply and the VMXD off-vehicle enhanced dock.

The Thor VM3 is designed to be mounted to a dock in a vehicle with either a RAM mount or U Bracket system. A power cable is provided with the Thor VM3 dock. An optional 21 key numeric or 95 key laptop-style USB keyboard and keyboard mounts are available. An integrated scanner mount is also offered. Optional communication cables are available.

Vehicle mounting brackets are specifically designed for vehicle mount applications. The vehicle mounted assembly restrains the Thor VM3 and isolates it from shock and vibration. A RAM metal table stand is available to secure the Thor VM3 and dock when in an office environment, for example.

The vehicle mount holds the dock and the Thor VM3 attaches to the dock. The dock remains attached to the vehicle, however, the Thor VM3 has a quick release located on the lower rear side that allows the Thor VM3 to easily be removed from the dock. The Thor VM3 can be operated for a minimum of 30 minutes from an internal UPS battery when not attached to a dock. The Thor VM3 can be transferred from one dock equipped vehicle to another for easy portability. The dock provides accessory attachment and conditioned power for the Thor VM3.

Overhead, dash and roof support pillar mounting is via a RAM Mount or U-bracket accessory which includes all the hardware required for vehicle mounting.

Never put the Thor VM3 into the vehicle mounted assembly until the assembly is securely fastened to the vehicle.

Prepare for Vehicle Mounting

The Thor VM3 should be secured to an area in the vehicle where it:

- Does not obstruct the driver's vision or safe vehicle operation.
- Will be protected from rain or inclement weather.
- Will be protected from extremely high concentrations of dust or wind-blown debris.
- Can be easily accessed by a user seated in the driver's seat while the vehicle is not in operation.

Quick Start

The following list outlines, in a general way, the process to follow when mounting the Thor VM3 in a vehicle. Refer to the following sections in this document for more details.

1. [Install RAM Mount](#) or [Install U Bracket Mount](#) to the vehicle.
2. [Place Thor VM3 in the Dock](#).
3. Secure accessories such as an optional external keyboard or a scanner holder to either an integrated or remote mounting bracket.
4. Adjust the Thor VM3 to the best viewing angle.
5. [Install Remote Antenna](#) or [Install External Antenna](#) if necessary.
6. [Connect Cables](#) for any peripherals.
7. Connect vehicle power:
 - [12-48 VDC Vehicles \(10-60 VDC Direct Connection\)](#)
 - [60-144 VDC Vehicles \(50-150 VDC Power Supply, Screws on Top of Lid\)](#)
 - [60-144 VDC Vehicles \(50-150 VDC Power Supply, Screws on Side of Lid\)](#).
 - [Thor VX8 / Thor VX9 Adapter Cable](#)
 - [VX6 / VX7 Adapter Cable](#)
8. Secure all cables in [Strain Relief Cable Clamps](#).

The Thor VM3 is ready for use.

Maintenance - Vehicle Mounted Devices

Check the vehicle mounting hardware frequently and re-tighten if necessary.

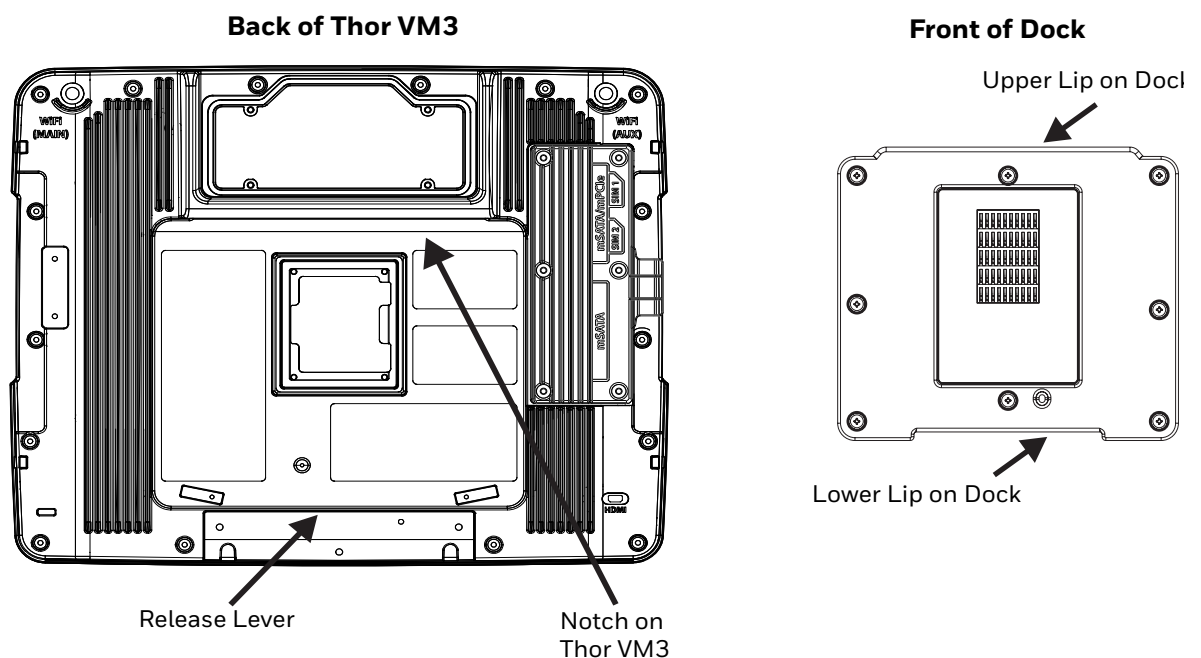
If the vehicle mounting hardware and connections become broken, loose or cracked, the assembly must be taken out of service and replaced. Contact [Technical Assistance](#) for help.

Cleaning

If it becomes necessary to clean the Thor VM3, dock, peripherals or mounting hardware see:

- [Cleaning the Thor VM3 and the Dock](#)
- [Cleaning the Touch Screen](#)

Place Thor VM3 in the Dock



1. Locate the notch on the upper rear of the Thor VM3.
2. Slide this notch over the top lip of the dock. Slide the Thor VM3 from side to side on the dock to make sure it fully engages on the lip of the dock. If the Thor VM3 cannot be slid side to side, the lip is engaged.
3. Pull the quick release lever on the Thor VM3 down and push the Thor VM3 against the dock.

4. Release the quick release lever. The quick release lever catches the lower lip on the dock and secures the Thor VM3 to the dock. Be sure the red quick release lever is pushed all the way in to secure the Thor VM3 to the dock.
5. If necessary, adjust the viewing angle of the Thor VM3.

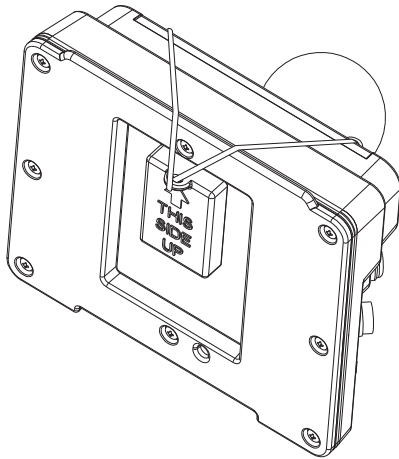
When the Thor VM3 is placed in the dock, the following may happen:

- If the Thor VM3 is off and power is connected to the dock, the Thor VM3 may boot when placed in the dock. The behavior depends on the Power Configuration Mode selected. See [Ignition Control Mode](#) and [Auto-On Mode](#).
- If the Thor VM3 is on and power is connected to the dock, the Thor VM3 power management timers may change when the Thor VM3 is placed in the dock. See [Power](#).

When the Thor VM3 is removed from the dock, the following may happen:

- If the Thor VM3 is on and power is connected to the dock, the Thor VM3 power management timers may change when the Thor VM3 is placed in the dock. See [Power](#).

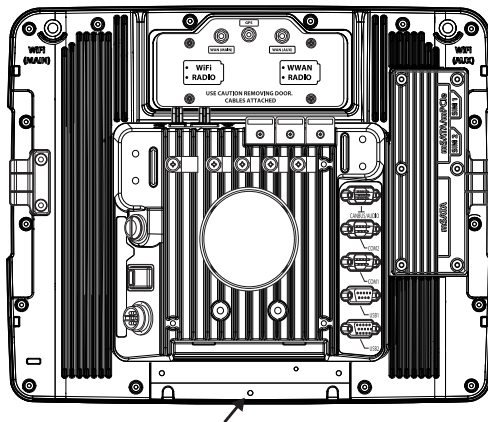
Dock I/O Pin Cover.



The dock contains a tethered I/O Pin Cover to protect the I/O pins on the dock when a Thor VM3 is not mounted in the dock.

- When the Thor VM3 is not installed in the dock, use the I/O Pin Cover to protect the pins on the dock as shown.
- When a Thor VM3 is installed in the dock, the I/O Pin Cover can be placed out of the way behind the dock.

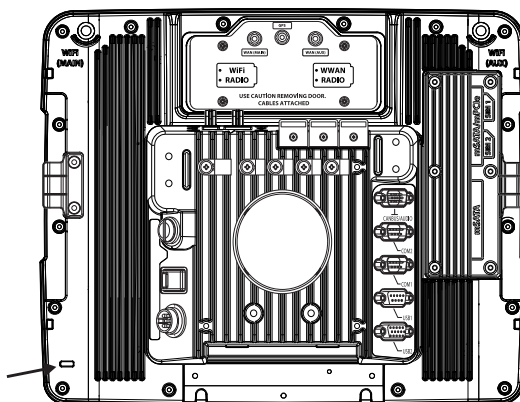
Padlock



It may be desirable to secure the Thor VM3 in the dock so it cannot be removed from the dock. The quick release handle on the Thor VM3 is notched to allow a user supplied standard padlock to be placed through a hole in the bracket on the back of the Thor VM3 in the location shown below. Once the padlock is installed, the release handle cannot be moved so the Thor VM3 cannot be removed from the dock. The padlock shackle must be smaller than 3/16" (4.76mm).

A cable tie wrap can be used instead of a padlock if desired.

Laptop Security Cable



The Thor VM3 can be secured with a standard laptop security cable using the slot on the back of the Thor VM3.

Install RAM Mount



Caution: This device is intended to transmit RF energy. For protection against RF exposure to humans and in accordance with FCC rules and Industry Canada rules, this transmitter should be installed such that a minimum separation distance of at least 20 cm (7.8 in.) is maintained between the antenna and the general population. This device is not to be co-located with other transmitters.

Before installation begins, verify you have the applicable vehicle mounting bracket assembly components necessary, as shown in the following figures.

Components - RAM Mounting Kits

Mounting kits that do not include an external keyboard are shown below.

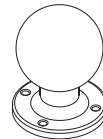
Mounting kits that include a provision for an external keyboard include the parts on this page plus the parts on the next page.

In addition to the kits below, individual RAM mounting components are also available.

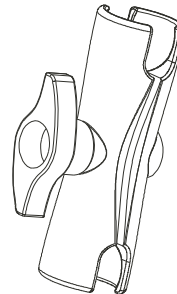
Mounting Kits without Keyboards

Each mounting kit contains:

RAM Ball (Size D) for back of Thor VM3 dock with hardware (screws and washers) to attach RAM ball to dock

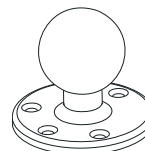


RAM Arm (Size D), length varies by kit selected

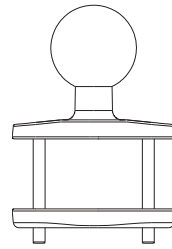


One of three mounting options:

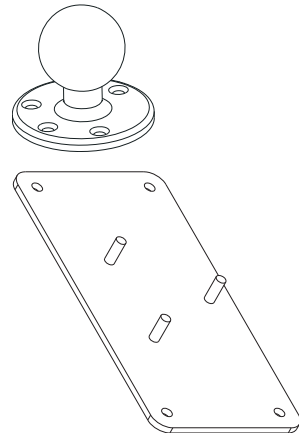
- RAM Ball mount (Size D, may include 3 cone washers), or



- RAM Clamp mount (Size D), or



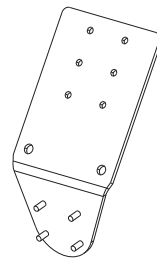
- RAM Plate mount with RAM Ball (Size D) with Hardware (cone washers and nuts) to attach Ball to Plate



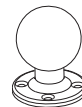
Mounting Kits with Integrated Keyboard Mounting

Additionally, the kits for the Thor VM3 with an integrated 95 key keyboard mount include:

Thor VM3 Keyboard Mounting Bracket



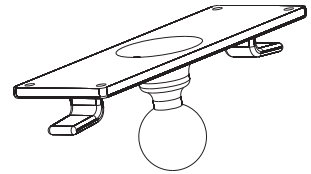
RAM Ball (Size C) with hardware (nuts) to attach RAM ball to Keyboard Mounting Bracket



RAM Arm (Size C)



Keyboard Mounting Plate with RAM Ball (Size C) and hardware (screws and washers) to attach Keyboard to Mounting Plate



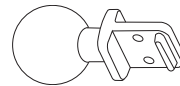
Accessory Mounting Kits

An accessory mounting kit is also available. This kit mounts the 21 key numeric keyboard or the Thor scanner holder to the Enhanced Dock.

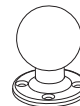
Note: This accessory mount kit is only for use with the Enhanced Dock.

Accessory RAM Ball

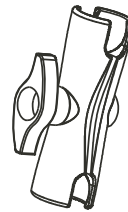
This accessory RAM ball mounts to the back of the Enhanced Dock.



RAM Ball (Size C) to attach RAM ball to 21key numeric keyboard or scanner holder.



RAM Arm (Size C)



Procedure - RAM Mount Assembly

Equipment Needed: Sockets, screwdriver and a Torque wrench capable of measuring to 50 inch pounds (5.64±.56 N/m).

Note: Torquing tool is not supplied by Honeywell. Tools needed to attach the RAM Clamp Mount to the vehicle are not supplied by Honeywell.

Torque Measurement

You will need a torquing tool capable of torquing to 20 inch pounds (1.10 N/m). Torque all screws and bolts according to the following table:

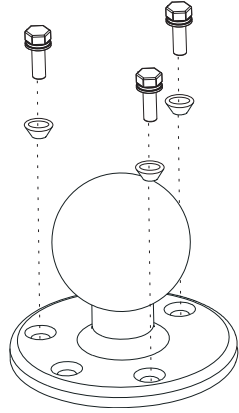
For these nuts...	Torque to
10-32 lock nuts	17 - 20 in/lb (0-95 - 1.10 N/m)

Step 1a – Attach RAM Ball to Vehicle

Note: If you are using the RAM clamp mount, please go to [Step 1b – Mount RAM Clamp to Vehicle](#). If you are using the RAM plate mount, please go to [Step 1c – Attach RAM Plate to Vehicle and Attach RAM Ball](#).

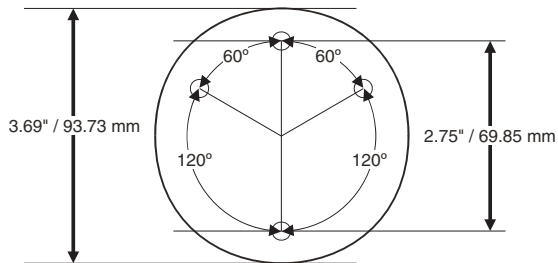
1. Determine the position for mounting the RAM ball base. Be sure to position the RAM bracket to allow access to the switches and ports on the bottom of the Thor VM3.
2. Attach the RAM ball base to the vehicle mounting surface using three or four 1/4 bolts (not included) or equivalent fasteners. If the mounting kit includes cone washers, use those as illustrated below.

IMPORTANT: Mount to the most rigid surface available.



Mounting Dimensions

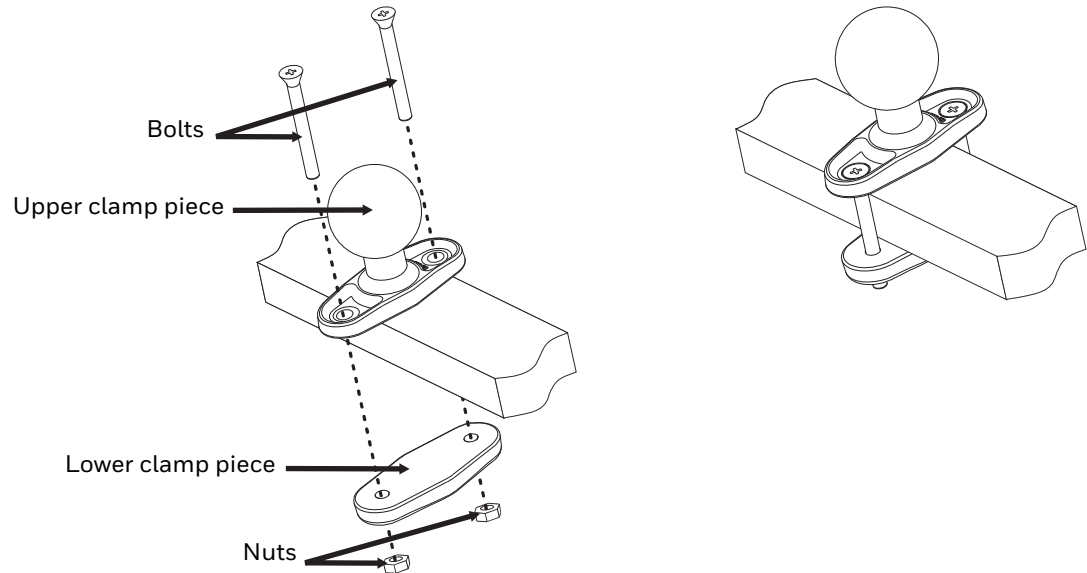
Note: Drill and tap holes for three 1/4 bolts. Drawing not to scale.



Step 1b – Mount RAM Clamp to Vehicle

Note: If you are using the RAM ball mount, please go to [Step 1a – Attach RAM Ball to Vehicle](#). If you are using the RAM plate mount, please go to [Step 1c – Attach RAM Plate to Vehicle and Attach RAM Ball](#).

1. Determine the position for mounting the RAM clamp mount. The clamp mount can be used on a beam (such as on a fork lift truck) up to 2.5" (63.5 mm) wide and approximately 2" (50.8 mm) thick. The clamp may be attached to a thicker beam by substituting longer bolts (not included). Be sure to position the RAM clamp mount to allow access to the switches and ports on the bottom of the Thor VM3.

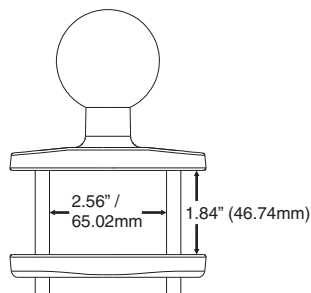


Position the upper clamp piece with ball on the beam. Place the bolts through the holes in the upper clamp piece.

2. Position the lower clamp piece below the beam. Align the bolts with the holes in the lower clamp piece.
3. Place the nylon locking nuts on the bolts and tighten the bolts.

Mounting Dimensions

Note: Drawing not to scale.

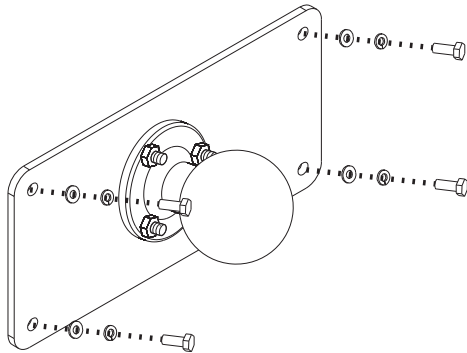


Step 1c – Attach RAM Plate to Vehicle and Attach RAM Ball

Note: If you are using the RAM ball mount, please go to [Step 1a – Attach RAM Ball to Vehicle](#) If you are using the RAM clamp mount, please go to [Step 1b – Mount RAM Clamp to Vehicle](#).

1. Determine the position for mounting the RAM ball plate. Be sure to position the RAM plate to allow access to the switches and ports on the bottom of the Thor VM3.
2. Attach the RAM ball plate to the vehicle mounting surface using four 1/4 bolts (not included) or equivalent fasteners.
3. If not already attached, attach the RAM ball to the RAM ball plate using three M6 nuts and washers.

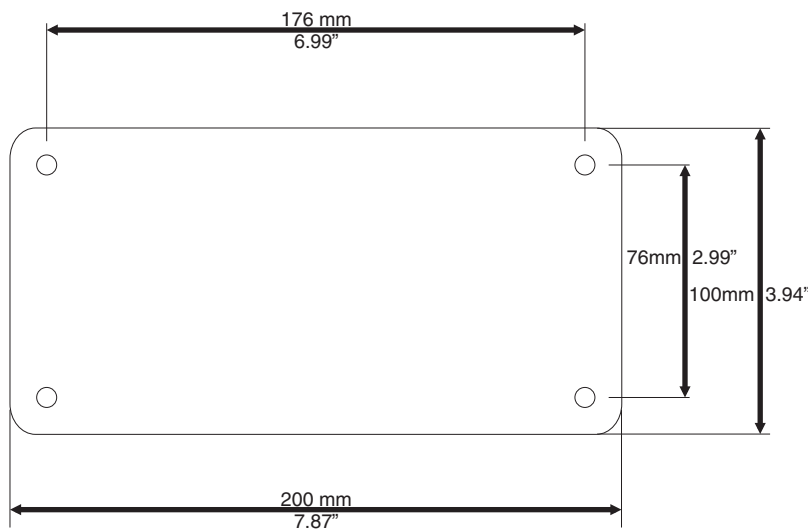
IMPORTANT: Mount to the most rigid surface available.



Mounting Dimensions

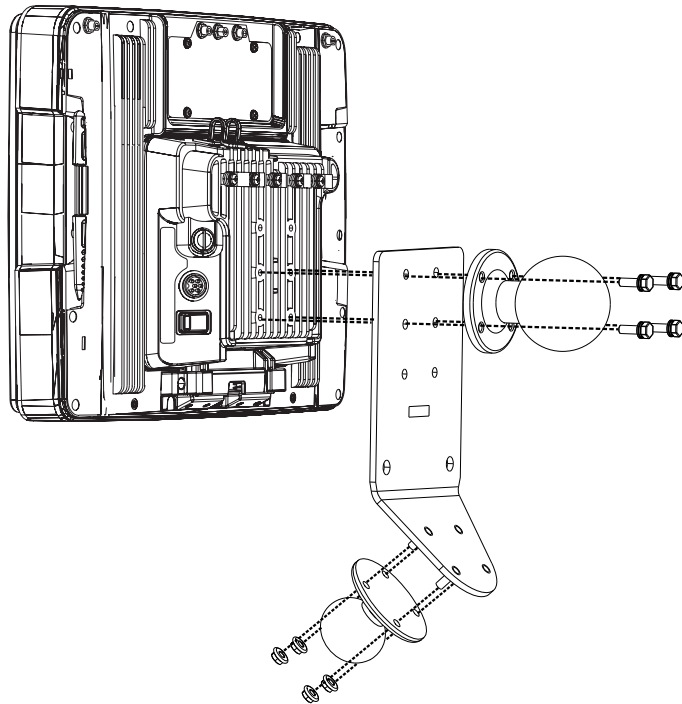
There are 4 mounting holes in the plate. Use four 1/4 bolts to secure the plate to the vehicle.

Note: Drawing not to scale.



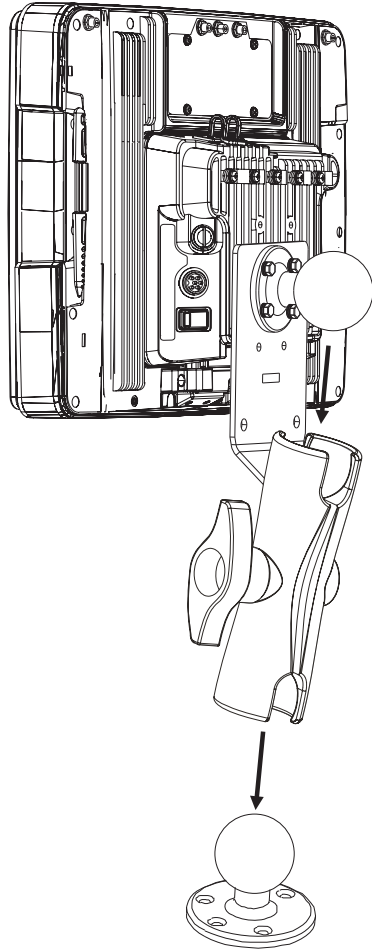
Step 2 – Attach RAM Mount Ball to the Thor VM3 Dock

1. Turn the Thor VM3 off before attaching the RAM mount ball.
2. Place the Thor VM3 face down on a stable surface.
3. If using the external keyboard mount, position the Keyboard Bracket and the Size D RAM ball on the rear of the Thor VM3 dock, aligning the holes on the back of the Thor VM3 dock with the holes on the bracket and the RAM ball base.
4. If not using the external keyboard mount, position the RAM ball on the rear of the Thor VM3 dock, aligning the holes on the back of the Thor VM3 dock with the holes on the RAM ball base. Attach with four M5 screws, flat washers and lock washers.
5. If using the external keyboard mount, attach the Size C RAM ball to the Thor VM3 Keyboard bracket with four M5 nuts, flat washers and lock washers.



Step 3 – Attach Thor VM3 Assembly to RAM Mount

1. Slip the Size D RAM arm over the ball on the vehicle RAM mount (RAM Ball mount shown).
2. Insert the ball on the dock into the RAM arm and tighten the knob on the RAM arm using the supplied RAM wrench.



Step 4 – Place the Thor VM3 into the Dock

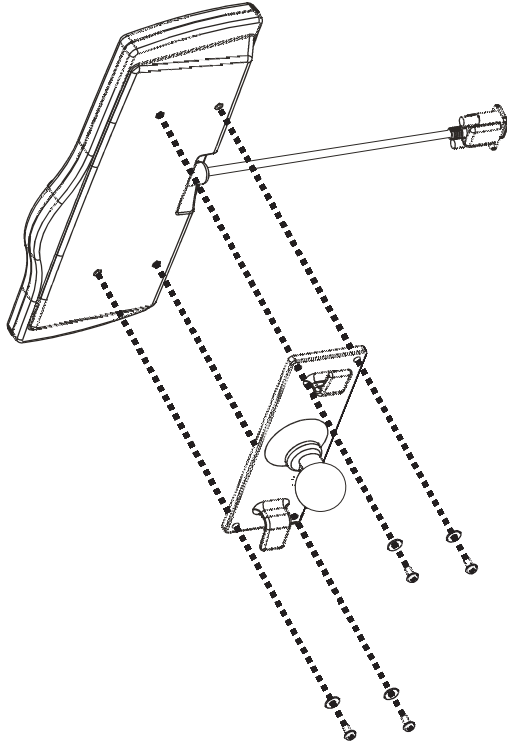
If the Thor VM3 is not already mounted to the dock, [Place Thor VM3 in the Dock](#)

If the optional external keyboard is not used, the mounting process is complete.

Step 5 – Attach Alphanumeric Keyboard to Mounting Plate (Optional)

Note: This step is only for a Thor VM3 with the optional external keyboard.

If using the optional integrated keyboard mount, attach the keyboard to keyboard mounting plate, using four #8 screws, flat washers and lock washers.

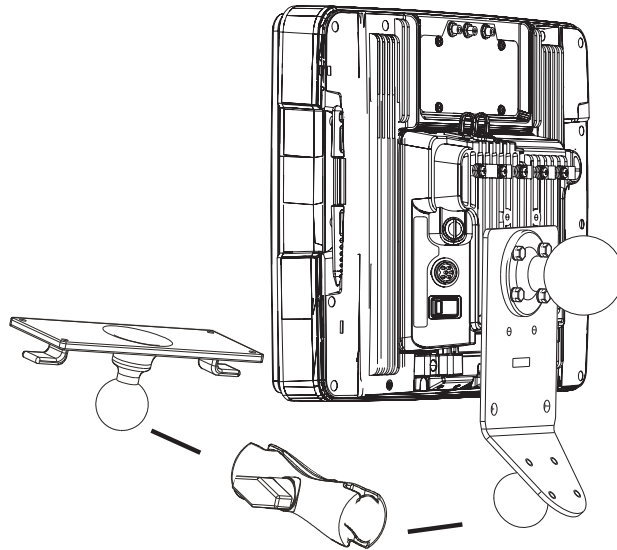


Note: Excess keyboard cable length can be looped around the hooks on the bottom of the keyboard mounting plate.

Step 6 – Attach Keyboard Assembly to Thor VM3 Assembly (Optional)

Note: This step is only for a Thor VM3 with the optional external keyboard.

1. Slip the Size C RAM arm over the ball on the Thor VM3 Keyboard Bracket.
2. Slip the ball on the Keyboard Mounting Plate into the other end of the Size C RAM arm.
3. Tighten the knob on the RAM arm using the supplied RAM wrench.

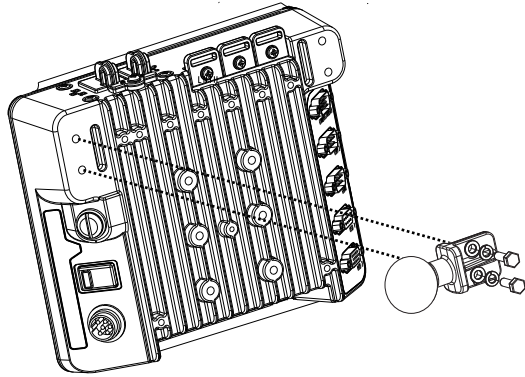


Note: Some components omitted for detail clarity.

Step 7 - Attach Numeric Keypad (Optional)

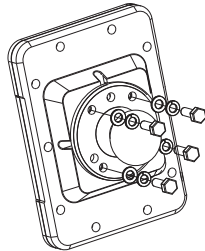
This step is only for use with the Enhanced Dock.

1. Attach the accessory RAM ball to the Enhanced Dock. There are two mounting provisions, one on either side of the Enhanced Dock and either can be used to mount the numeric keypad.

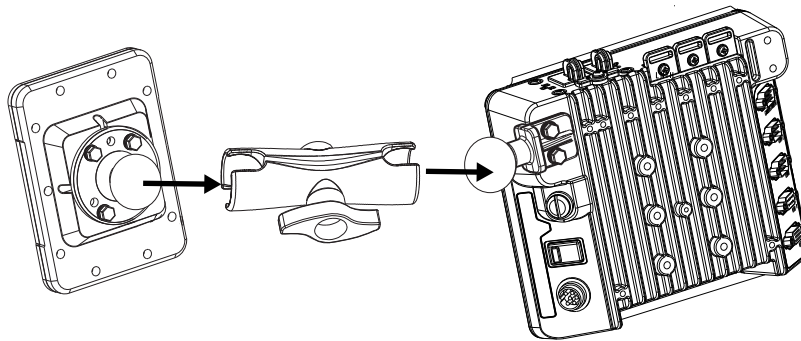


Note: Some components eliminated for detail clarity.

2. Attach the RAM ball to the back of the keypad.



3. Slip the RAM arm over the accessory RAM ball.
4. Slip the RAM ball on the keyboard into the RAM arm.

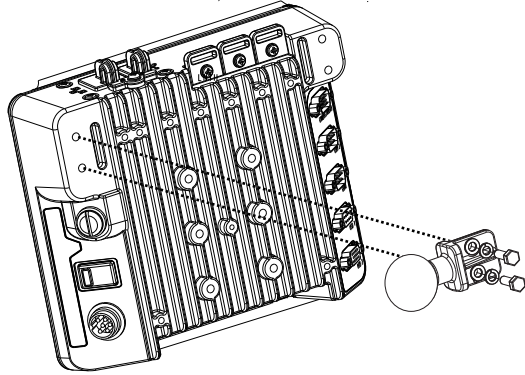


5. Tighten the knob on the RAM arm while adjusting to the desired angle.

Step 8 - Attach Scanner Holder (Optional)

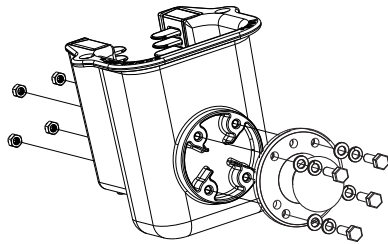
This step is only for use with the Enhanced Dock.

1. Attach the accessory RAM ball to the Enhanced Dock. There are two mounting provisions, one on either side of the Enhanced dock and either can be used to mount the scanner holder.

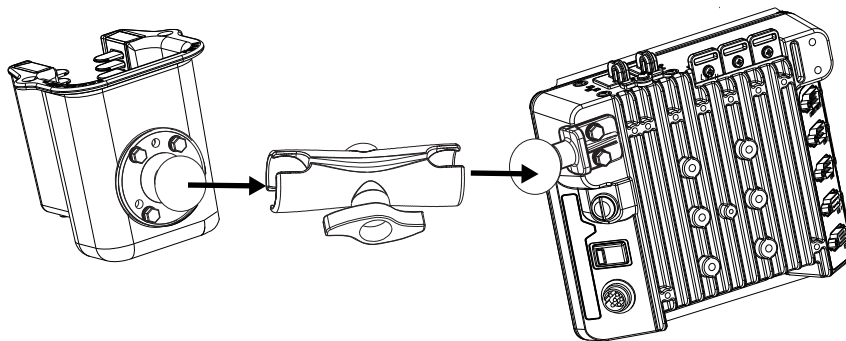


Note: Some components eliminated for detail clarity.

2. Attach the RAM ball to the back of the scanner holder.



3. Slip the RAM arm over the accessory RAM ball.
4. Slip the RAM ball on the scanner holder into the RAM arm.



5. Tighten the knob on the RAM arm while adjusting to the desired angle.

Install U Bracket Mount

Note: This mounting system does not have provisions for an integrated external keyboard mount or scanner holder. These accessories can be mounted remotely if desired. Contact [Technical Assistance](#) for details.

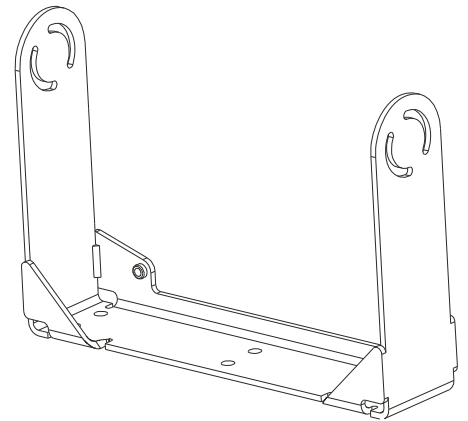
Before installation begins, verify you have the applicable vehicle mounting bracket assembly components necessary, as shown in the following figures.

Components - U Bracket Mounting Assembly

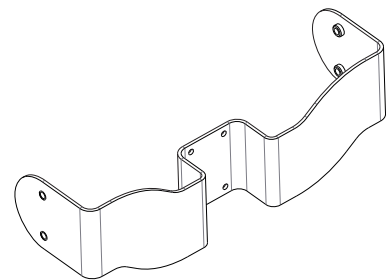
The U bracket kit is available in two configurations:

- With a U Bracket included for new vehicle installations
- Without a U Bracket for installing the Thor VM3 in place of a previous Honeywell vehicle mounted computer, such as a VX6 or VX7.

U Bracket (only necessary for new installations)



Adapter Bracket (includes screws, flat washers and lock washers to attach Adapter Bracket to Thor VM3 and to U Bracket). The U bracket may already be installed on the vehicle where a VX1, VX2, VX4, VX5, VX6 or VX7 was previously installed.



Procedure - U Bracket Assembly

Equipment Needed: Sockets and a Torque wrench capable of measuring to 50 inch pounds (5.64±.56 N/m).

Note: *Torquing tool is not supplied by Honeywell.*

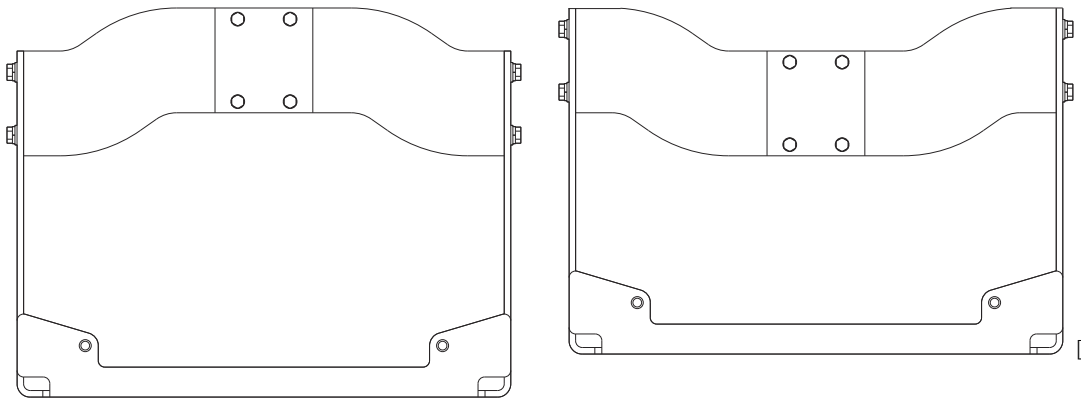
Torque Measurement

You will need a torquing tool capable of torquing to 35-50 inch pounds (1.10 N/m). Torque all screws and bolts according to the following table:

For these bolts...	Torque to
1/4-20x5/8 Bolts	50 in/lb (5.6 N/m)
M5x16mm Bolts	35 in/lb (4.0 N/m)
1/4 Bolts (user supplied)	50.0±5 in/lb (5.64±.56 N/m)

Mounting Positions

The adapter bracket can be mounted in a high or low position, depending on viewing position, as shown below.



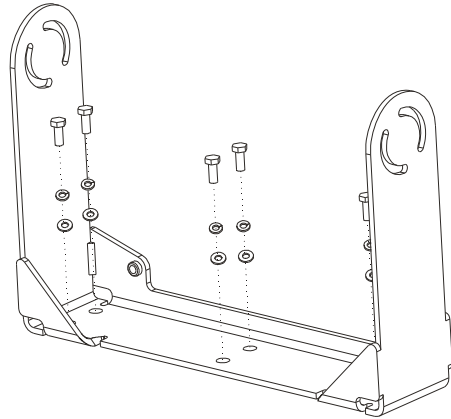
Additionally, the slotted U bracket allows the Thor VM3 to be mounted vertically or tilted forward or backward for best viewing angle.

Step 1 - Install U Bracket to Vehicle

1. Position the bracket to allow access to the switches and ports on the bottom of the Thor VM3.
2. Attach the bottom mounting bracket to the vehicle mounting surface using a minimum of four 1/4 bolts (or equivalent) fasteners.

Note: 1/4 bolts and washers not included. It is recommended to use lock washers and flat washers on the fasteners.

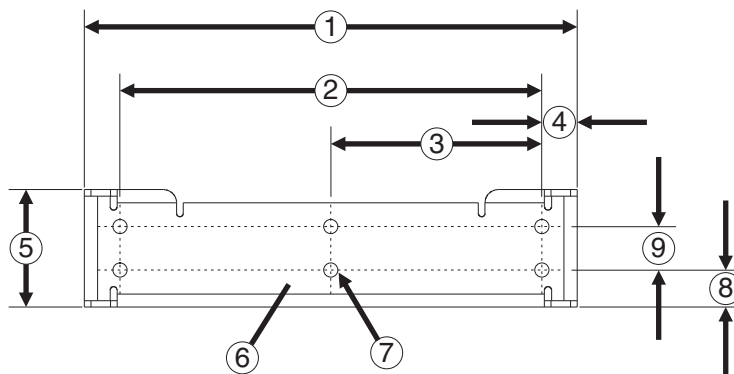
IMPORTANT: Mount to the most rigid surface available.



After the bottom bracket has been attached to a rigid surface, you are ready to assemble the Thor VM3 bracket configuration.

Mounting Dimensions

Note: Drawing not to scale.



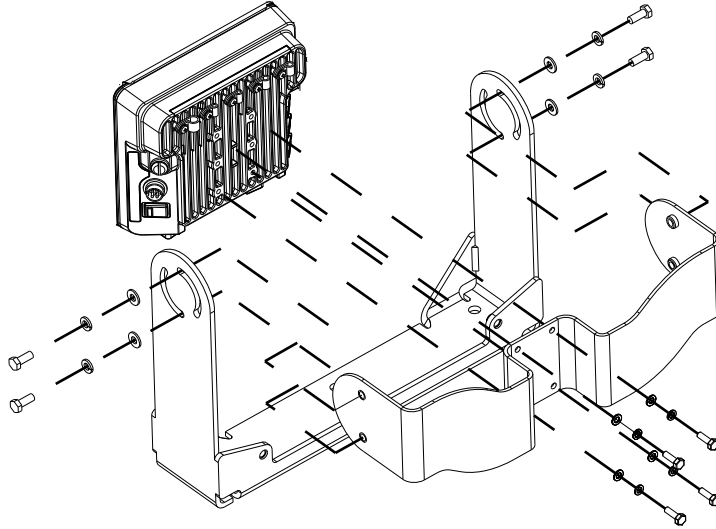
1. 14.40 in / 359.2 mm
2. 12.10 in / 307.3 mm
3. 6.05 in / 153.6 mm
4. 1.02 in / 25.9 mm
5. 3.38 in / 85.85 mm
6. Vehicle Mount Footprint
7. 0.406 in / 10.312 mm
8. 0.88 in / 22.3 mm
9. 1.25 in / 31.75 mm

Step 2 - Remove RAM Ball

If the Thor VM3 dock has a RAM ball attached, the RAM ball must be removed from the dock to use the U Bracket mount.

Remove the RAM ball. The hardware used to attach the RAM ball to the dock is not reused for the U bracket mount.

Step 3 - Attach Adapter Bracket



Note: For the steps below, always place the lock washer on the bolt before the flat washer.

1. Attach the Adapter Bracket to the Thor VM3 dock using four each M5x16mm bolt, M5 lock washer and M5 flat washer. Torque to 35 in/lbs (4.0 N/m).
2. Attach the Thor VM3/Adapter Bracket assembly to the U Bracket using 4 each 1/4-20x5/8 bolt, 1/4 lock washer and 1/4 flat washer.
3. If the Thor VM3 is not already mounted to the dock, [Place Thor VM3 in the Dock](#).
4. Adjust the Thor VM3 to the desired viewing angle.
5. Torque the 14-20 bolts to 50 in/lbs (5.6 N/m).

1. Secure the cable to the bracket with plastic tie straps (cable ties).
2. If necessary, the cable ties can be trimmed to length after installation. Cut the excess tie length off flush and not at an angle to prevent sharp edges that may cause cuts.

Connect Power

See [Power Supply Connector](#) for connector pinout

For the **VM1D Standard Dock** and **VM3D Enhanced Dock**, power options include:

- [12-48 VDC Vehicles \(10-60 VDC Direct Connection\)](#) - Direct connection to vehicle power.
- [60-144 VDC Vehicles \(50-150 VDC Power Supply, Screws on Side of Lid\)](#) - Requires the use of a DC/DC power supply.
- [60-144 VDC Vehicles \(50-150 VDC Power Supply, Screws on Top of Lid\)](#) - Requires the use of a DC/DC power supply.
- [VX6 / VX7 Adapter Cable](#) - For applications where the Thor VM3 replaces a previously installed VX6 or VX7.
- [Thor VX8 / Thor VX9 Adapter Cable](#) - For applications where the Thor VM3 (with a VM1D Standard Dock or VM3D Enhanced dock (replaces a previously installed Thor VX8 or Thor VX9.
- [CV61 Adapter Cable](#) - For applications where the Thor VM3 replaces a previously installed CV61.
- [Screen Blanking](#) - Optional connection to blank the Thor VM3 display while the vehicle is in motion.

For the **VMXD Enhanced Dock**, power options include:

- [VMXD Enhanced Dock with Thor VX8/Thor VX9 Power Cable](#) - For applications where a Thor VM3 (with a VMXD Enhanced Dock) replaces a previously installed Thor VX8 or Thor VX9.

When using the Thor VM3 with AC power, use the **VMXD Enhanced Dock for Off-Vehicle Use** and:

- [External AC/DC Power Supply](#) - For use when DC power is not available to power the Thor VM3, such as in an office environment.

Power Cable Cautions



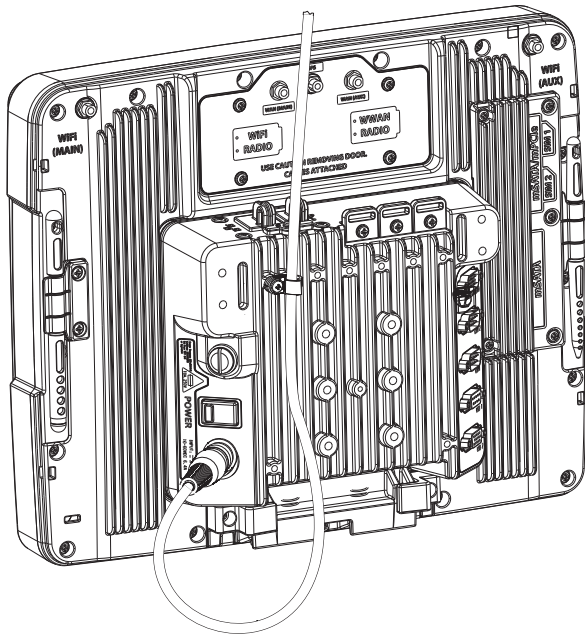
Caution: When routing the power cable:

- Route power cable away from the outside of the fork truck.
- Choose a mounting location so that the power cable does not extend outside the vehicle and that provides sufficient clearance so that the power cable (especially the dock connector end) is not pressed against part of the vehicle.
- Use the proper [Strain Relief Cable Clamps](#) to secure cable.
- The power cable is less flexible in low temperature environments. Avoid sharp bends.



Caution: Regularly inspect power cable for damage, especially in low temperature environments. Contact [Technical Assistance](#) for replacement cable options.

Power Cable Routing



12-48 VDC Vehicles (10-60 VDC Direct Connection)



Caution: For installation by trained service personnel only.



Caution: Use caution when routing the power cable. See [Power Cable Cautions](#).



Caution: These instructions for use with [VM1D Standard Dock](#) and [VM3D Enhanced Dock](#) only.

Fuse Requirements



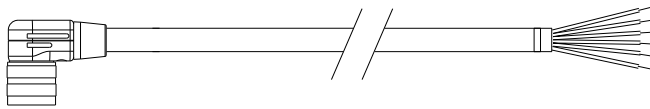
Warning: For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery's positive (+) terminal. Use VM3055FUSE (or equivalent) to install the fuse as shown below:

- For **12VDC** input, use the 10A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 12VDC.
- For **24VDC** input, use the 6A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 24VDC.
- For **36VDC** input, use the 4A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 36VDC.
- For **48VDC** input, use the 3A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 48VDC.

Note: For North America, a UL Listed fuse is to be used.

Power Cable Identification

The DC power cable is included with the dock:



Twist the red and red/white wires together and twist the black and black/white wires together before connecting to vehicle power.

Wire Color	Connection
Red	DC + (10-60 VDC)
Red/White	DC + (10-60 VDC)
Black	DC -
Black/White	DC -
Green	Ground
Blue	Ignition Input (optional)

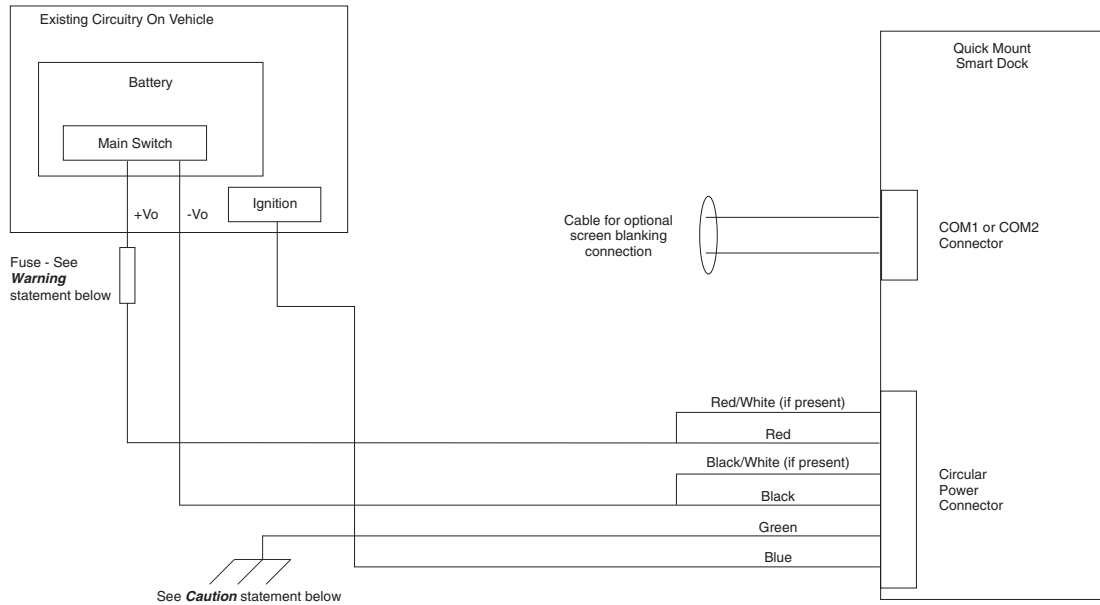
Note: Correct electrical polarity is required for safe and proper installation. See the figures below for additional wire color-coding specifics.

The Thor VM3 DC input wires (Red, Red/White DC+ and Black, Black/White DC-) and the Blue ignition input wire are galvanically isolated. The Green ground input is used for electrostatic discharge (ESD) protection.

Vehicle 10-60VDC Direct Power Connection

1. The Thor VM3 must not be mounted in the dock. The power switch on the dock must be turned *Off*. The power cable must be UNPLUGGED from the dock.
2. While observing the [Fuse Requirements](#), connect the power cable as close as possible to the actual battery terminals of the vehicle (if using unswitched power).
3. Use proper electrical and mechanical fastening means for terminating the cable. Properly sized “crimp” type electrical terminals are an accepted method of termination. Please select electrical connectors sized for use with 20AWG (0.81mm²) conductors.
4. Refer to the wiring diagrams following this section for wire colors and connections:
 - [Ignition Control Wiring Diagram](#)
 - [Auto-On Control Wiring Diagram](#)
 - [Manual Control Wiring Diagram](#)
5. Route the power cable the shortest way possible removing any left-over cable. The cable is rated for a maximum temperature of 105°C (221°F). Therefore, when routing this cable it should be protected from physical damage and from surfaces that might exceed this temperature. Cable should be protected from physical damage from moving parts. Do not expose the cable to chemicals or oil that may cause the wiring insulation to deteriorate. Always route the cable so that it does not interfere with safe operation and maintenance of the vehicle.
6. Provide mechanical support for the cable by securing it to the vehicle structure at approximately one foot intervals, taking care not to over tighten and pinch conductors or penetrate outer cable jacket.
7. Connect the watertight connector end of the power cable to the Thor VM3 dock power connector by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely.
8. Secure the power cable to the Thor VM3 using the [Strain Relief Cable Clamps](#).
9. [Place Thor VM3 in the Dock](#)
10. If using the [Screen Blanking](#) feature, install the screen blanking box or switch.
11. Press the [Power Switch](#) on the back of the Thor VM3 dock.
12. Press the [Power Button](#) on the front of the Thor VM3 to turn on the Thor VM3.

Ignition Control Wiring Diagram



Caution: For battery powered vehicles:

- Twist the red and red/white wires together and connect to battery positive.
- Black and black/white wires must be connected to battery negative. Twist these wires together and connect to battery negative.
- Green wire must be connected to the vehicle chassis ground.



Caution: For internal combustion engine powered vehicles:

- Twist the red and red/white wires together and connect to battery positive.
- Twist the black wire and a black/white together and connect to battery negative.
- Green wire is connected to the vehicle chassis ground, which can also be battery negative.

Fuse Requirements



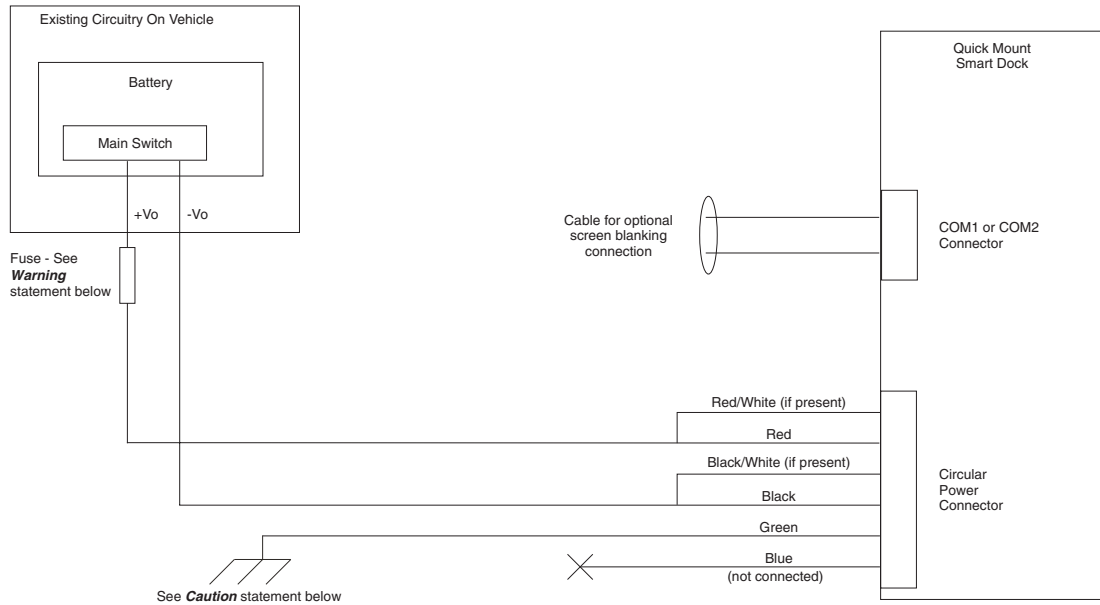
Warning: For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery's positive (+) terminal. Use VM3055FUSE (or equivalent) to install the fuse as shown below:

- For **12VDC** input, use the 10A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 12VDC.
- For **24VDC** input, use the 6A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 24VDC.

- For **36VDC** input, use the 4A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 36VDC.
- For **48VDC** input, use the 3A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 48VDC.

Note: *For North America, a UL Listed fuse is to be used.*

Auto-On Control Wiring Diagram



Caution: For battery powered vehicles:

- Twist the red and red/white wires together and connect to battery positive.
- Black and black/white wires must be connected to battery negative. Twist these wires together and connect to battery negative.
- Green wire must be connected to the vehicle chassis ground.



Caution: For internal combustion engine powered vehicles:

- Twist the red and red/white wires together and connect to battery positive.
- Twist the black wire and a black/white together and connect to battery negative.
- Green wire is connected to the vehicle chassis ground, which can also be battery negative.

Fuse Requirements



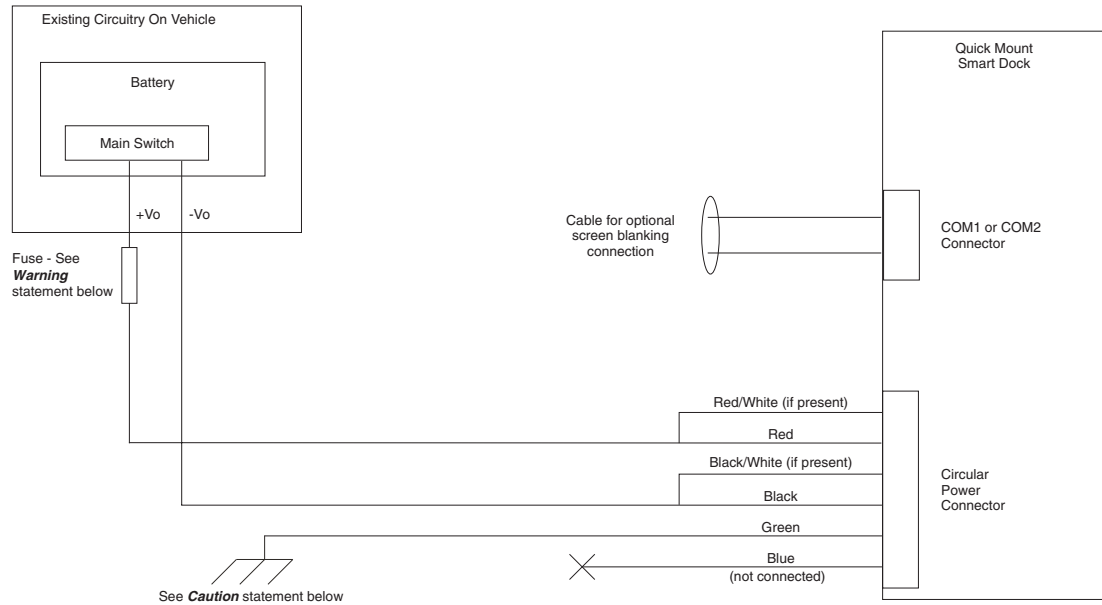
Warning: For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery's positive (+) terminal. Use VM3055FUSE (or equivalent) to install the fuse as shown below:

- For **12VDC** input, use the 10A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 12VDC.
- For **24VDC** input, use the 6A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 24VDC.

- For **36VDC** input, use the 4A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 36VDC.
- For **48VDC** input, use the 3A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 48VDC.

Note: *For North America, a UL Listed fuse is to be used.*

Manual Control Wiring Diagram



Caution: For battery powered vehicles:

- Twist the red and red/white wires together and connect to battery positive.
- Black and black/white wires must be connected to battery negative. Twist these wires together and connect to battery negative.
- Green wire must be connected to the vehicle chassis ground.



Caution: For internal combustion engine powered vehicles:

- Twist the red and red/white wires together and connect to battery positive.
- Twist the black wire and a black/white together and connect to battery negative.
- Green wire is connected to the vehicle chassis ground, which can also be battery negative.

Fuse Requirements



Warning: For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery's positive (+) terminal. Use VM3055FUSE (or equivalent) to install the fuse as shown below:

- For **12VDC** input, use the 10A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 12VDC.
- For **24VDC** input, use the 6A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 24VDC.

- For **36VDC** input, use the 4A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 36VDC.
- For **48VDC** input, use the 3A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than 48VDC.

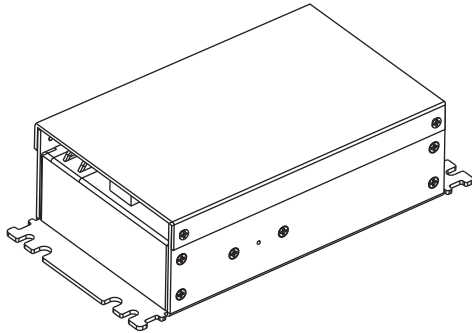
Note: *For North America, a UL Listed fuse is to be used.*

60-144 VDC Vehicles (50-150 VDC Power Supply, Screws on Side of Lid)



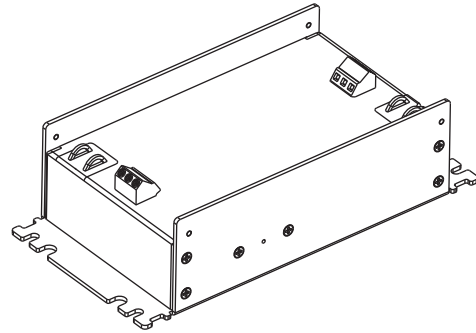
These instructions are for use with [VM1D Standard Dock](#) and [VM3D Enhanced Dock](#) only.

This option requires DC/DC external power supply Honeywell Part no. 9000313PWR-SPLY.



Shown With Lid Attached

- Lid is secured with screws on the side of lid.



Shown With Lid Removed

- Input and output connector blocks under lid.
- One positive (Vin+), negative (Vin-) and ground (⏏) connection in input block.
- One positive (Vo+) and negative (Vo-) connection in output block.

If the DC/DC power supply does not have screws in the side of the lid, see [60-144 VDC Vehicles \(50-150 VDC Power Supply, Screws on Top of Lid\)](#).



Caution: For installation by trained service personnel only.



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



Caution: Use caution when routing the power cable. See [Power Cable Cautions](#).

Fuse Requirements



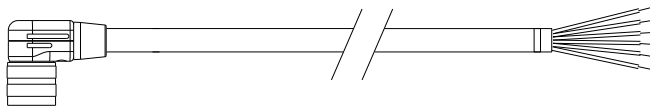
Warning: For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery's positive (+) terminal. Use VM3055FUSE (or equivalent) to install the fuse as shown below:

- For **all voltages**, use the 3A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than the vehicle input voltage.

Note: Note: For North America, a UL Listed fuse is to be used.

Power Cable Identification

The DC power cable is included with the dock:



Twist the red and red/white wires together and twist the black and black/white wires together before connecting to vehicle power.

Wire Color	Connection
Red	DC + (10-60 VDC)
Red/White	DC + (10-60 VDC)
Black	DC -
Black/White	DC -
Green	Ground
Blue	Ignition Input (optional)

Note: Correct electrical polarity is required for safe and proper installation. See [Wiring Diagram](#) for additional wire color-coding specifics.

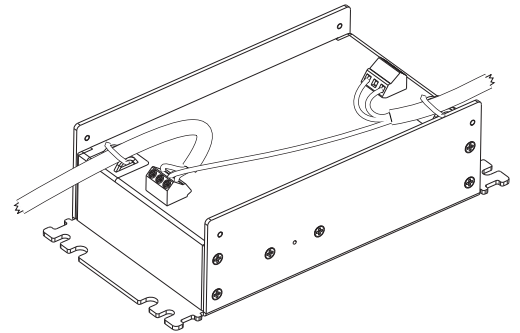
The Thor VM3 DC input wires (Red, Red/White DC+ and Black, Black/White DC-) and the Blue ignition input wire are galvanically isolated. The Green ground input is used for electrostatic discharge (ESD) protection.

Vehicle 50-150VDC Power Connection

1. Please review the [Wiring Diagram](#), before beginning power cable install.
2. The Thor VM3 must not be mounted in the dock. The power switch on the dock must be turned *Off*. The power cable must be UNPLUGGED from the dock.
3. Route the cable from the Thor VM3 to the DC/DC power supply. Route the power cable the shortest way possible. The cable is rated for a maximum temperature of 105°C (221°F). When routing this cable, it should be protected from physical damage and from surfaces that might exceed this temperature. Do not expose the cable to chemicals or oil that may cause the wiring insulation to deteriorate. Always route the cable so that it does not interfere with safe operation and maintenance of the vehicle.
4. Cut the cable to length and strip the wire ends.
5. Remove the lid from the DC/DC power supply.

6. Connect the stripped end of the positive wires (red and red/white twisted together) to the output block. See [Power Cable Identification](#).
7. Connect the stripped end of the negative wires (black and black/white twisted together) to the output. See [Power Cable Identification](#).

Note: The input block has V_{IN+} , V_{IN-} and GND terminals.
The output block has V_{O+} and V_{O-} terminals.



8. Connect the ground (green) wire from the Thor VM3 to the GND terminal on the input side of the DC/DC power supply.
9. Route the wiring from the DC/DC power supply to the vehicle's electrical system. **Do not connect to vehicle power at this time.**
10. Strip the wire ends and connect to the input side of the DC/DC power supply.
11. Use looms and wire ties to secure all wiring as shown.
12. Reattach the cover with the screws.
13. Connect the DC/DC power supply to the vehicle's electrical system as directed below:



Caution: For battery powered vehicles:

- V_{IN+} is connected to battery positive.
- V_{IN-} must be connected to battery negative.
- GND must be connected to the vehicle chassis ground.



Caution: For internal combustion engine powered vehicles:

- V_{IN+} is connected to battery positive.
- V_{IN-} is connected to battery negative.
- GND is connected to the vehicle chassis ground, which can also be battery negative.

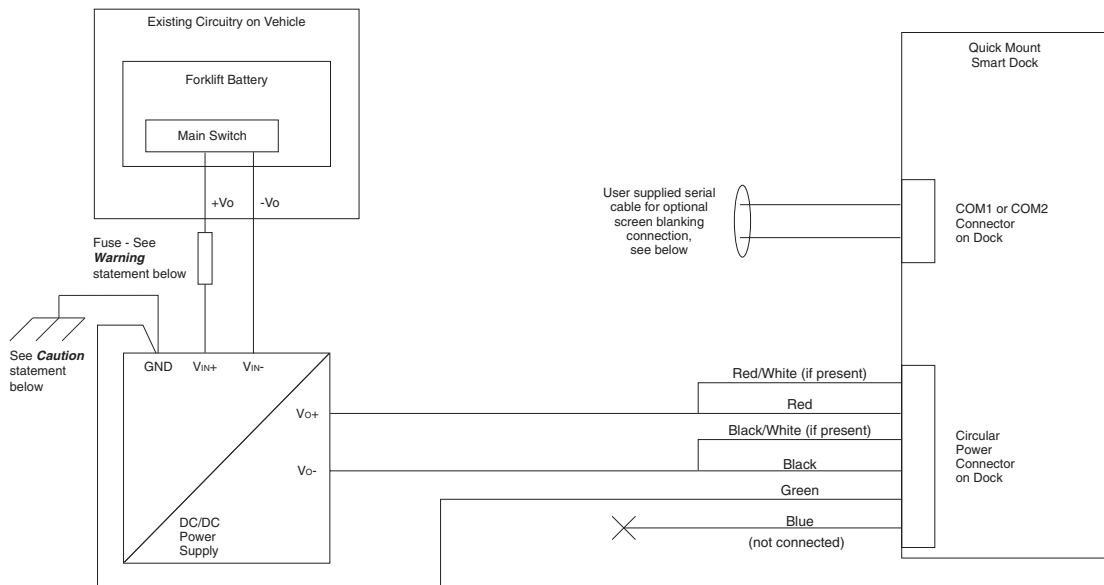
14. While observing the [Fuse Requirements](#) connect the power cable as close as possible to the actual battery terminals of the vehicle. When available, always connect to unswitched terminals in the vehicle fuse panel, after providing proper fusing.

ATTENTION: For uninterrupted power, electrical supply connections should not be made at any point after the ignition switch of the vehicle.

15. Use proper electrical and mechanical fastening means for terminating the cable. Properly sized “crimp” type electrical terminals are an accepted method of termination. Select electrical connectors sized for use with 18AWG (1mm²) conductors.
16. Provide mechanical support for the cable by securing it to the vehicle structure at approximately one foot intervals, taking care not to over tighten and pinch conductors or penetrate the outer cable jacket.
17. Connect the watertight connector end of the power cable to the Thor VM3 dock power connector by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely. Flip the power switch on the back of the dock to On.
18. Secure the power cable to the Thor VM3 using the [Strain Relief Cable Clamps](#).
19. [Place Thor VM3 in the Dock](#)
20. If using the [Screen Blanking](#) feature, install the screen blanking box or switch.
21. Press the [Power Switch](#) on the back of the Thor VM3 dock.
22. Press the [Power Button](#) on the front of the Thor VM3 to turn on the Thor VM3.

Note: Ignition control is not available for trucks over 60VDC.

Wiring Diagram



Caution: For battery powered vehicles:

- GND must be connected to the vehicle chassis ground.



Caution: For internal combustion engine powered vehicles:

- GND is connected to the vehicle chassis ground, which can also be battery negative.

Fuse Requirements



Warning: For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery's positive (+) terminal. Use VM3055FUSE (or equivalent) to install the fuse as shown below:

- For **all voltages**, use the 3A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than the vehicle input voltage.

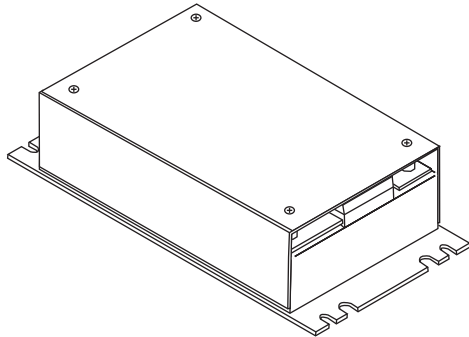
Note: For North America, a UL Listed fuse is to be used.

60-144 VDC Vehicles (50-150 VDC Power Supply, Screws on Top of Lid)



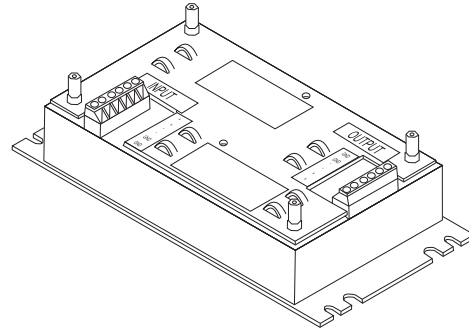
These instructions are for use with [VM1D Standard Dock](#) and [VM3D Enhanced Dock](#) only.

This option requires DC/DC power supply Honeywell Part no. VX89303PWRSPPLY shown below.



Shown With Lid Attached

- Lid is secured with screws on the top of lid.



Shown With Lid Removed

- Input and output connector blocks under lid.
- Two positive (+), negative (-) and ground (\oplus) connections per terminal block

If the DC/DC power supply does not have screws in the top of the lid, see [60-144 VDC Vehicles \(50-150 VDC Power Supply, Screws on Side of Lid\)](#).



Caution: For installation by trained service personnel only.



Caution: The VX89303PWRSPPLY power supply is sealed per IPXX. Usage in areas where moisture can affect the power supply connections should be avoided. The power supply should be mounted in a dry location within the vehicle or placed in a suitable protective enclosure.



Caution: Use caution when routing the power cable. See [Power Cable Cautions](#).

Fuse Requirements



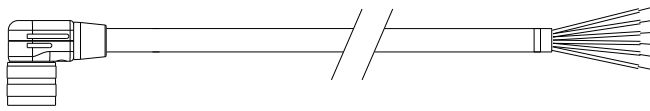
Warning: For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery's positive (+) terminal. Use VM3055FUSE (or equivalent) to install the fuse as shown below:

- For **all voltages**, use the 3A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than the vehicle input voltage.

Note: For North America, a UL Listed fuse is to be used.

Power Cable Identification

The DC power cable is included with the dock:



Twist the red and red/white wires together and twist the black and black/white wires together before connecting to vehicle power.

Wire Color	Connection
Red	DC + (10-60 VDC)
Red/White	DC + (10-60 VDC)
Black	DC -
Black/White	DC -
Green	Ground
Blue	Ignition Input (optional)

Note: Correct electrical polarity is required for safe and proper installation. See [Wiring Diagram](#) for additional wire color-coding specifics.

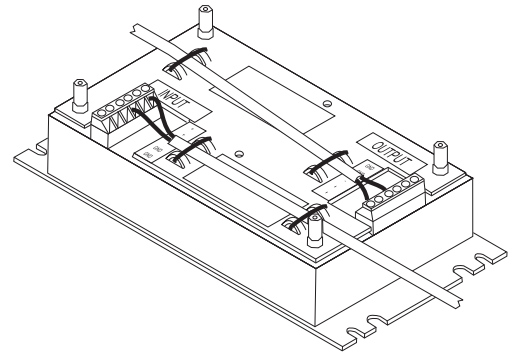
The Thor VM3 DC input wires (Red, Red/White DC+ and Black, Black/White DC-) and the Blue ignition input wire are galvanically isolated. The Green ground input is used for electrostatic discharge (ESD) protection.

Vehicle 50-150VDC Power Connection

- Please review the [Wiring Diagram](#), before beginning power cable install.
- The Thor VM3 must not be mounted in the dock. The power switch on the dock must be turned *Off*. The power cable must be UNPLUGGED from the dock.
- Route the cable from the Thor VM3 to the DC/DC power supply. Route the power cable the shortest way possible. The cable is rated for a maximum temperature of 105°C (221°F). When routing this cable, it should be protected from physical damage and from surfaces that might exceed this temperature. Do not expose the cable to chemicals or oil that may cause the wiring insulation to deteriorate. Always route the cable so that it does not interfere with safe operation and maintenance of the vehicle.
- Cut the cable to length and strip the wire ends.
- Remove the lid from the DC/DC power supply.
- Connect the stripped end of the positive wires (red and red/white twisted together) to the output block. See [Power Cable Identification](#).

7. Connect the stripped end of the negative wires (black and black/white twisted together) to the output. See [Power Cable Identification](#).

Note: The input and output blocks each have two + (plus), two - (minus) and two ⊕ (ground) connectors. Either connector in the block can be used to connect the matching polarity wire.



8. Route the wiring from the DC/DC power supply to the vehicle's electrical system. Do not connect to vehicle power at this time.
9. Strip the wire ends and connect to the input side of the DC/DC power supply.
10. Use looms and wire ties to secure all wiring as shown.
11. Reattach the cover with the screws.
12. Connect the DC/DC power supply to the vehicle's electrical system as directed below



Caution: For battery powered vehicles:

- + is connected to battery positive.
- - must be connected to battery negative.
- ⊕ must be connected to the vehicle chassis ground.



Caution: For internal combustion engine powered vehicles:

- + is connected to battery positive.
- - is connected to battery negative.
- ⊕ is connected to the vehicle chassis ground, which can also be battery negative.

13. While observing the [Fuse Requirements](#), connect the power cable as close as possible to the actual battery terminals of the vehicle. When available, always connect to unswitched terminals in the vehicle fuse panel, after providing proper fusing.

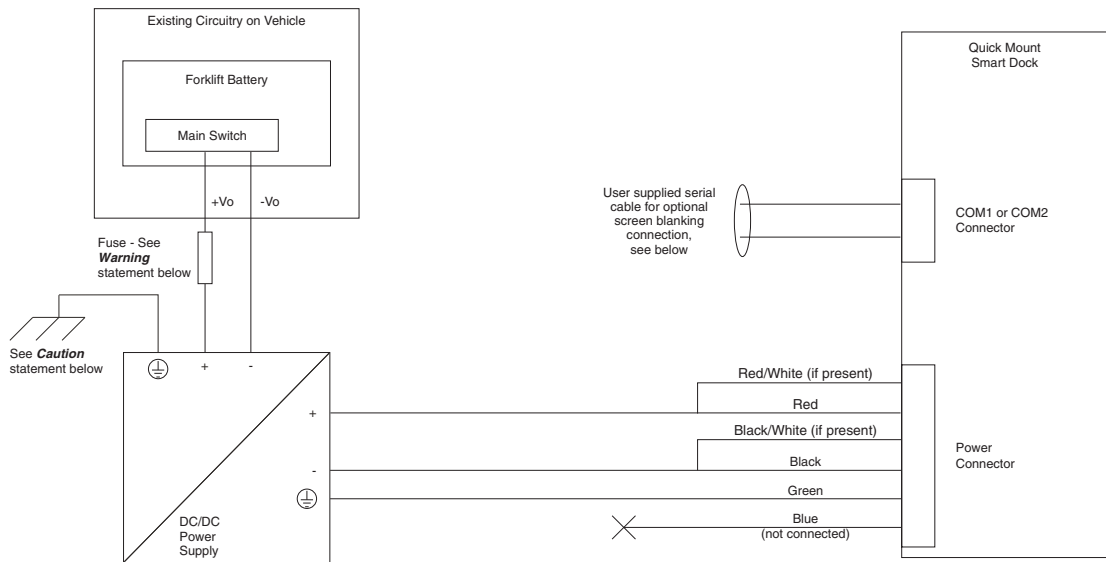
ATTENTION: For uninterrupted power, electrical supply connections should not be made at any point after the ignition switch of the vehicle.

14. Use proper electrical and mechanical fastening means for terminating the cable. Properly sized “crimp” type electrical terminals are an accepted method of termination. Select electrical connectors sized for use with 18AWG (1mm²) conductors.

15. Provide mechanical support for the cable by securing it to the vehicle structure at approximately one foot intervals, taking care not to over tighten and pinch conductors or penetrate the outer cable jacket.
16. Connect the watertight connector end of the power cable to the Thor VM3 dock power connector by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely. Flip the power switch on the back of the dock to On.
17. Secure the power cable to the Thor VM3 using the [Strain Relief Cable Clamps](#).
18. [Place Thor VM3 in the Dock](#)
19. If using the [Screen Blanking](#) feature, install the screen blanking box or switch.
20. Press the [Power Switch](#) on the back of the Thor VM3 dock.
21. Press the [Power Button](#) on the front of the Thor VM3 to turn on the Thor VM3.

Note: Ignition control is not available for trucks over 60VDC.

Wiring Diagram



Caution: For battery powered vehicles:

⊕ must be connected to the vehicle chassis ground.



Caution: For internal combustion engine powered vehicles:

⊕ is connected to the vehicle chassis ground, which can also be battery negative.

Fuse Requirements



Warning: For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery's positive (+) terminal. Use VM3055FUSE (or equivalent) to install the fuse as shown below:

- For **all voltages**, use the 3A fuse from the kit or a slow blow fuse that has a DC voltage rating greater than the vehicle input voltage.

Note: For North America, a UL Listed fuse is to be used.

VX6 / VX7 Adapter Cable



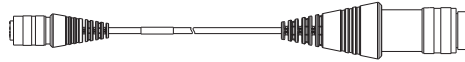
These instructions are for use with [VM1D Standard Dock](#) and [VM3D Enhanced Dock](#) only.

An adapter cable is available to attach the Thor VM3 to a vehicle previously equipped with a VX6/VX7 DC power cable. The adapter cable has a 5-pin connector to match with the VX6/VX7 power supply cable on one end and a 6-pin connector to match to the Thor VM3 on the other end. This section assumes the VX6/VX7 power cable is properly connected to vehicle power. Refer to the VX6 or VX7 Vehicle Mounting Reference Guide for details.



Warning: Because the VX6/VX7 supports 10–60 VDC power input, verify input voltages before using this adapter cable with an existing VX6 or VX7 power connection installation.

To Power Connector on Dock



To VX6/VX7 Power Supply Cable

When this adapter cable is used, there is no provision for an ignition switch input. Therefore the vehicle ignition monitoring function is not available when using this cable.

Connect to VX6 / VX7 Power Cable

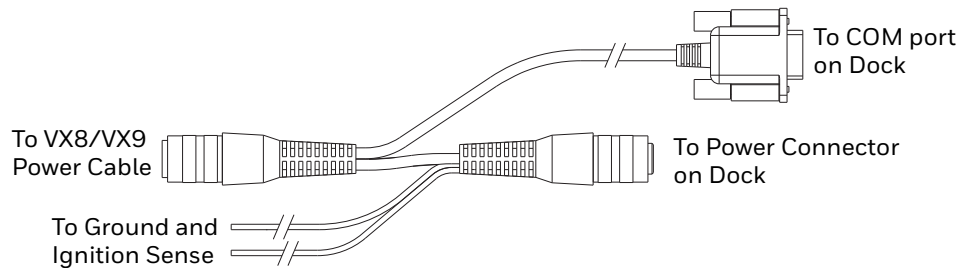
1. Connect the adapter cable to the Thor VM3 power cable by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely.
2. The cable is rated for a maximum temperature of 105°C (221°F). Therefore, routing this cable it should be protected from physical damage and from surfaces that might exceed this temperature. Cable should be protected from physical damage from moving parts. Do not expose the cable to chemicals or oil that may cause the wiring insulation to deteriorate. Always route the cable so that it does not interfere with safe operation and maintenance of the vehicle.
3. Provide mechanical support for the cable by securing it to the vehicle structure at approximately one foot intervals, taking care not to over tighten and pinch conductors or penetrate outer cable jacket.
4. Connect the watertight connector end of the power cable to the Thor VM3 dock power connector by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely.
5. Secure the power cable to the Thor VM3 using the [Strain Relief Cable Clamps](#).
6. [Place Thor VM3 in the Dock](#)
7. If using the [Screen Blanking](#) feature, install the screen blanking box or switch.
8. Press the [Power Switch](#) on the back of the Thor VM3 dock.
9. Press the [Power Button](#) on the front of the Thor VM3 to turn on the Thor VM3.

Thor VX8 / Thor VX9 Adapter Cable



These instructions for use with [VM1D Standard Dock](#) and [VM3D Enhanced Dock](#) only. This cable is not used for the VMXD Enhanced Dock

An adapter cable is available to attach the Thor VM3 to a vehicle previously equipped with a VX8/VX9 DC power cable. The adapter cable has a 6-pin connector to match the VX8/VX9 power supply cable on one end and a 6-pin connector to match the Thor VM3 on the other end. The cable also has bare wires for ground and ignition sense connection plus a D9 cable to connect to a COM port on the Thor VM3 dock to provide a screen blanking signal. This section assumes the VX8/VX9 power cable is properly connected to vehicle power. Refer to the VX8 or VX9 Vehicle Mounting Reference Guide for details.



Connect to Thor VX8 / VX9 Power Cable

1. Connect the adapter cable to the Thor VX8/VX9 power cable by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely.
2. Connect the green wire to vehicle ground:



Caution: For battery powered vehicles:

The green wire must be connected to the vehicle chassis ground.



Caution: For internal combustion engine powered vehicles:

The green wire is connected to the vehicle chassis ground, which can also be battery negative.

3. If ignition control will be used, connect the blue wire to an ignition switched circuit (less than 1mA over input voltage range). If ignition control is not used, the blue wire can be left disconnected,
4. If the VX8/VX9 cable is connected to a screen blanking box or switch, connect the D9 connector to a COM port on the dock.
5. The cable is rated for a maximum temperature of 105°C (221°F). Therefore, when routing this cable it should be protected from physical damage and from surfaces that might exceed this temperature. Cable should be protected from physical damage from moving parts. Do not expose the cable to chemicals or oil that may

cause the wiring insulation to deteriorate. Always route the cable so that it does not interfere with safe operation and maintenance of the vehicle.

6. Provide mechanical support for the cable by securing it to the vehicle structure at approximately one foot intervals, taking care not to over tighten and pinch conductors or penetrate outer cable jacket.
7. Connect the watertight connector end of the power cable to the Thor VM3 dock power connector by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely.
8. Secure the power cable to the Thor VM3 using the [Strain Relief Cable Clamps](#).
9. [Place Thor VM3 in the Dock](#)
10. If using the [Screen Blanking](#) feature, install the screen blanking box or switch if not previously installed.
11. Press the [Power Switch](#) on the back of the Thor VM3 dock.
12. Press the [Power Button](#) on the front of the Thor VM3 to turn on the Thor VM3.

CV61 Adapter Cable



These instructions for use with [VM1D Standard Dock](#) and [VM3D Enhanced Dock](#) only.

An adapter cable is available to attach the Thor VM3 to a vehicle previously equipped with a CV61 DC power cable. The adapter cable has a 5-pin connector to match with the VV61 power supply cable on one end and a 6-pin connector to match to the Thor VM3 on the other end. This section assumes the CV61 power cable is properly connected to vehicle power. Refer to the CV61 documentation for details.

To Power Connector on Dock



To CV41 Power Supply Cable

When this adapter cable is used, there is no provision for an ignition switch input. Therefore the vehicle ignition monitoring function is not available when using this cable.

Connect to CV61 Power Cable

1. Connect the adapter cable to the CV61 power cable by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely.
2. The cable is rated for a maximum temperature of 105°C (221°F). Therefore, routing this cable it should be protected from physical damage and from surfaces that might exceed this temperature. Cable should be protected from physical damage from moving parts. Do not expose the cable to chemicals or oil that may cause the wiring insulation to deteriorate. Always route the cable so that it does not interfere with safe operation and maintenance of the vehicle.
3. Provide mechanical support for the cable by securing it to the vehicle structure at approximately one foot intervals, taking care not to over tighten and pinch conductors or penetrate outer cable jacket.
4. Connect the watertight connector end of the power cable to the Thor VM3 dock power connector by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely.
5. Secure the power cable to the Thor VM3 using the [Strain Relief Cable Clamps](#).
6. [Place Thor VM3 in the Dock](#)
7. If using the [Screen Blanking](#) feature, install the screen blanking box or switch.
8. Press the [Power Switch](#) on the back of the Thor VM3 dock.
9. Press the [Power Button](#) on the front of the Thor VM3 to turn on the Thor VM3.

Screen Blanking

Prerequisite: The steps outlined in either [12-48 VDC Vehicles \(10-60 VDC Direct Connection\)](#), [60-144 VDC Vehicles \(50-150 VDC Power Supply, Screws on Side of Lid\)](#) or [60-144 VDC Vehicles \(50-150 VDC Power Supply, Screws on Top of Lid\)](#) have been completed.

Screen blanking is accomplished by either a Screen Blanking Box or a user supplied switch.



Caution: For installation by trained service personnel only.

Fuse Requirements



Warning: For proper and safe installation, the input power lead to the Screen Blanking Box requires a 3 Amp maximum time delay (slow blow) high interrupting rating fuse.

Note: For North America, a UL Listed fuse is to be used.

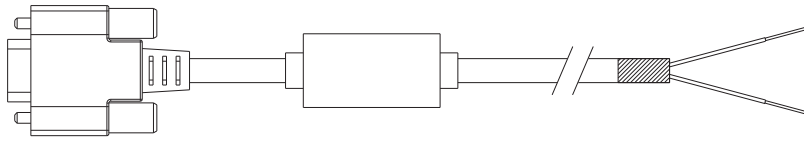
Screen Blanking Cable

When routing any additional cables for screen blanking:

- Route the cable the shortest way possible removing any left-over cable
- Fuses and cabling are user supplied. Therefore, route these cables so they are protected from physical damage and from surfaces that might exceed the cable's rated temperature threshold.
- Cable should be protected from physical damage from moving parts
- Do not expose the cable to chemicals or oil that may cause the wiring insulation to deteriorate
- Always route the cable so that it does not interfere with safe operation and maintenance of the vehicle.
- Provide mechanical support for the cable by securing it to the vehicle structure at approximately one foot intervals, taking care not to over tighten and pinch conductors or penetrate outer cable jacket.

Honeywell Screen Blanking Box Cable

An optional Honeywell Screen Blanking Box Cable is available.



DB9 Female	Function with Screen Blanking Box	Wire color
1 -6, 9	Not Used	
7 (RTS)	Connected to Screen Blanking Box, unswitched side	Black (see note)
8 (CTS)	Connected to Screen Blanking Box, switched side	Gray (see note)

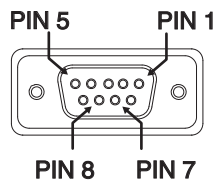
Note: Wire colors only apply to optional Honeywell Screen Blanking Box Cable, VM1080CABLE. Wire colors may vary in a user-supplied cable.

The optional Honeywell Screen Blanking Box Cable, VM1080CABLE, is installed as follows:

1. Connect the gray wire of the cable to the switched side of the Screen Blanking Box.
2. Connect the black wire of the cable to the unswitched side of the Screen Blanking Box.
3. Connect the D9 serial connector to either COM1 or COM2 serial port on the Thor VM3 dock.

User-Supplied Cable

A user-supplied cable can be used as well. Pins 7 and 8 must be connected as detailed below. No other pins are to be connected.

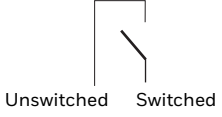


DB9 Female	Function with Screen Blanking Box	Function with Switch
1 -6, 9	Not Used	Not Used
7 (RTS)	Connected to Screen Blanking Box, unswitched side	Connected to Switch
8 (CTS)	Connected to Screen Blanking Box, switched side	Connected to Switch

The user-supplied cable is installed as follows:

1. Connect the wire from Pin 8 of the cable to the switched side of the Screen Blanking Box or to a user-supplied switch.
2. Connect the wire from Pin 7 of the cable to the unswitched side of the Screen Blanking Box or to a user-supplied switch.
3. Connect the D9 serial connector to either COM1 or COM2 serial port on the Thor VM3 dock.

Screen Blanking Box

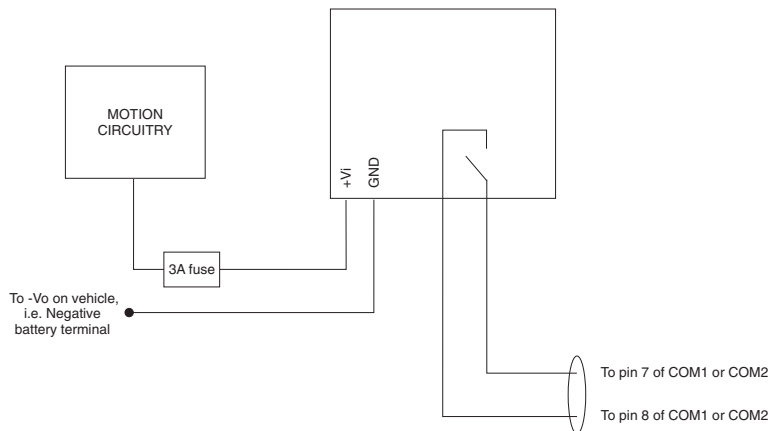
Screen Blanking Box Terminal	Connection
12-xxV	Input from vehicle motion sensing circuitry. Please refer to label on Screen Blanking Box for allowable voltage input range.
GND	DC -
	<p>These two terminals are for connecting a serial cable:</p> <ul style="list-style-type: none"> • If using an optional Honeywell screen blanking cable, VM1080CABLE, connect the <i>gray</i> wire to the <i>switched</i> side of the connection and connect the <i>black</i> wire to the <i>unswitched</i> side. • If using a user-supplied cable, the cable must be constructed so that Pin 7 (RTS) connects to <i>switched</i> side of the connection and Pin 8 (CTS) connects to the <i>unswitched</i> side.

It is assumed that the motion sensing circuitry in the illustrations below is powered by internal vehicle circuitry.

Please refer to the appropriate illustration below for Screen Blanking Box wiring diagrams.



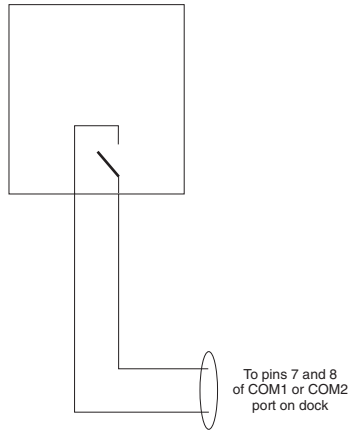
Warning: Do not exceed the maximum input voltage, either 60 or 72VDC, specified on the Screen Blanking Box label when using this configuration.



Note: The black and gray wire colors in the illustration only apply to the optional Honeywell Screen Blanking Box Cable, VM1080CABLE. The wire colors may be different in a user-supplied cable.

Screen Blanking with Switch

In applications where it is impractical to use the screen blanking box due to vehicle voltage or lack of a motion sensing signal, screen blanking can be controlled via a user supplied switch or relay that provides an electrical conductive connection on vehicle motion.



Pins 7 and 8 must be connected as shown in the illustration above. No other pins are to be connected.

VMXD Enhanced Dock with Thor VX8/Thor VX9 Power Cable



Caution: This dock is recommended for use when replacing an existing Thor VX8 or Thor VX9 where screen blanking is used. This dock eliminates the need for wiring changes by enabling the existing VX8/VX9 power cable and screen blanking box to be used when the VX8/VX9 is replaced by a Thor VM3 computer. These instructions are for this dock model only! The Ignition Control feature is not available when this dock is used.



Warning: The external DC/DC converter previously used with the Thor VX8 or Thor VX9 must be left in place to provide ground isolation. Connecting the dock power input directly to vehicle power could result in a safety hazard or equipment damage.



Warning: The cable shielding must be connected to chassis ground. Consult the instructions later in this section for the respective power supply type.



Caution: COM1 is used for screen blanking (via the power cable connector) and is unavailable when the screen blanking box is attached. When a screen blanking box is attached, any external serial device such as a scanner, must be connected to the COM2 port on the dock. If a screen blanking box is not connected via the power cable, the COM1 port on the dock is available for a serial device connection.



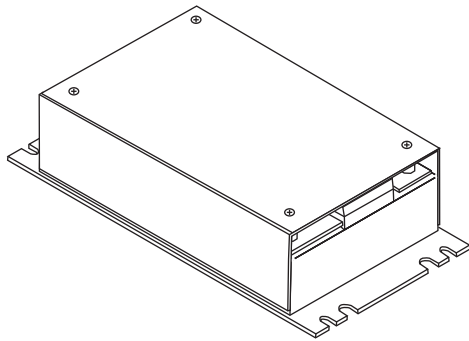
These instructions for use with [VMXD Enhanced Dock](#) only.

Determine the type of power supply used with the previous Thor VX8 or Thor VX9 installation:

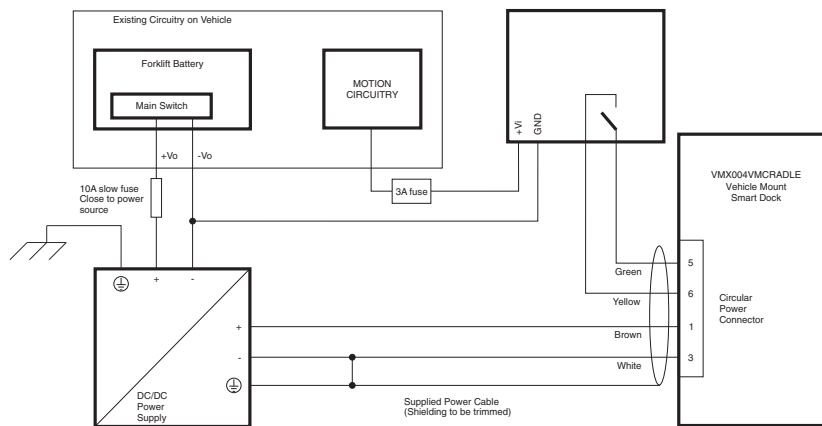
- [DC/DC Power Supply with Screws on Top of Lid](#)
- [DC/DC Power Supply with Screws on Side of Lid](#)

DC/DC Power Supply with Screws on Top of Lid

Caution: Inspect the cable shield to verify it is connected to chassis ground. If there is no connection from the cable shield to chassis ground, one must be added at this time. Use a jumper wire to connect the cable shield to chassis ground as shown below for the appropriate type of power supply installed on the vehicle. A jumper wire, as shown in the illustrations below, may be present to attach the chassis ground to the white wire of the power cable. This wire is not necessary but can be left in place if present. For proper screen blanking, verify the yellow and green wires are attached to the screen blanking box as shown in the illustrations below.




For this model, follow the diagram below to attach the power cable shield to chassis ground:




Caution: For battery powered vehicles:

- + is connected to battery positive.
- - must be connected to battery negative.

-  must be connected to the vehicle chassis ground.



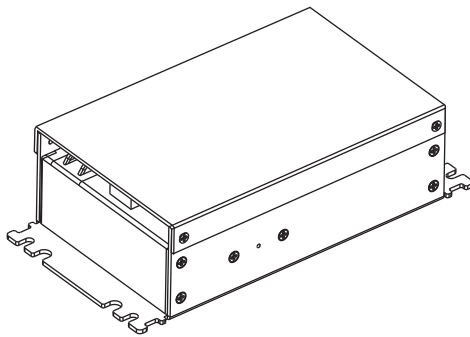
Caution: For internal combustion engine powered vehicles:

- + is connected to battery positive.
- - is connected to battery negative.
-  is connected to the vehicle chassis ground, which can also be battery negative.

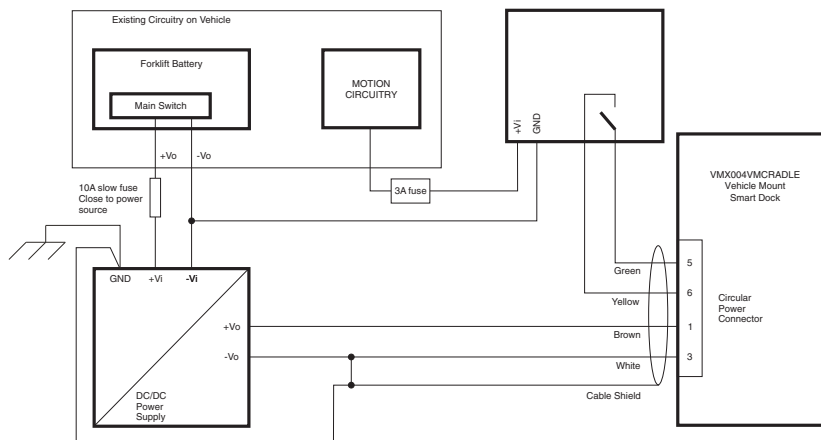
DC/DC Power Supply with Screws on Side of Lid



Caution: Inspect the cable shield to verify it is connected to chassis ground. If there is no connection from the cable shield to chassis ground, one must be added at this time. Use a jumper wire to connect the cable shield to chassis ground as shown below for the appropriate type of power supply installed on the vehicle. A jumper wire, as shown in the illustrations below, may be present to attach the chassis ground to the white wire of the power cable. This wire is not necessary but can be left in place if present. For proper screen blanking, verify the yellow and green wires are attached to the screen blanking box as shown in the illustrations below.



For this model, follow the diagram below to attach the power cable shield to chassis ground:



Caution: For battery powered vehicles:

- VIN+ is connected to battery positive.
- VIN- must be connected to battery negative.
- GND must be connected to the vehicle chassis ground.



Caution: For internal combustion engine powered vehicles:

- VIN+ is connected to battery positive.
- VIN- is connected to battery negative.
- GND is connected to the vehicle chassis ground, which can also be battery negative.

External AC/DC Power Supply



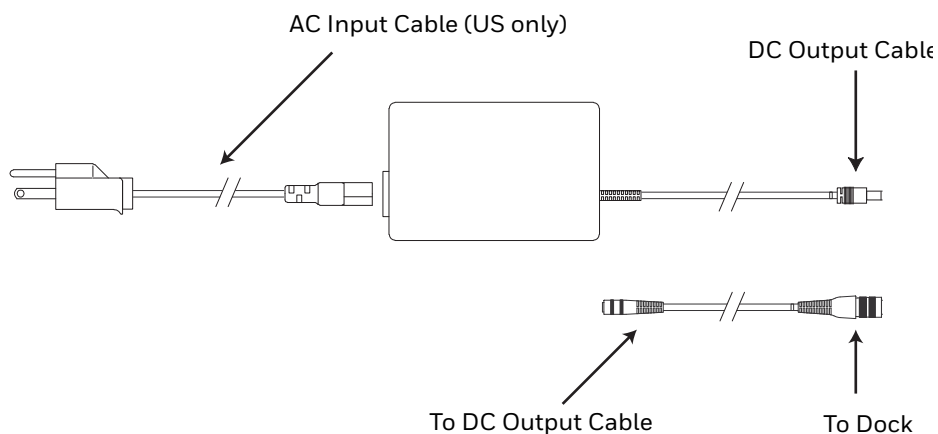
These instructions for use with [VMXD Enhanced Dock for Off-Vehicle Use](#) only.

The optional external AC/DC power supply is for use in environments, such as an office, where DC power is not available.

Note: *The Honeywell-approved AC/DC Power Supply and Adapter Cable are only intended for use in a 40°C (104°F) maximum ambient temperature environment.*

In North America, this unit is intended for use with a UL Listed ITE power supply with output rated 15 VDC, 4 Amp (maximum), 60 W (maximum). Outside North America, this unit is intended for use with an IEC certified ITE power supply with output rated 15 VDC, 4 Amp (maximum), 60 W (maximum).

The external power supply may be connected to either a 120V, 60Hz supply or, outside North America, to a 230V, 50Hz supply, using the appropriate detachable cordset. In all cases, connect to a properly grounded source of supply provided with maximum 15 Amp overcurrent protection (10 Amp for 230V circuits).



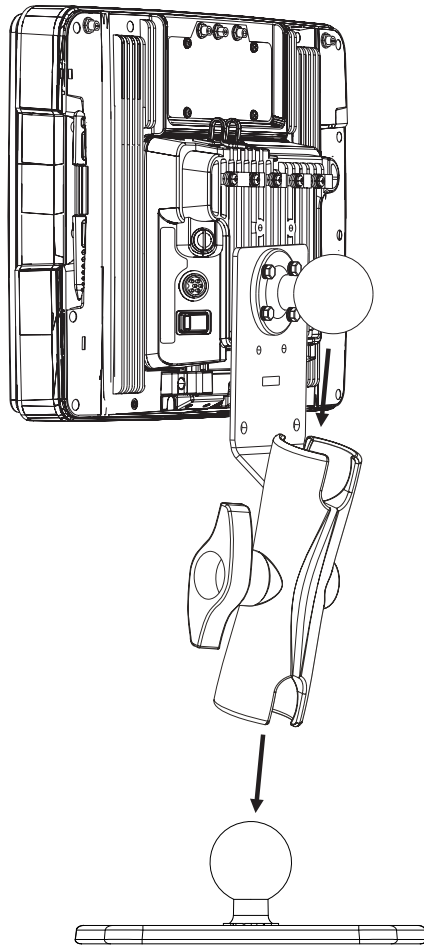
Connect External Power Supply

1. Connect the provided detachable cordset (US only, all others must order cable separately) to the external power supply (IEC 320 connector).
2. Plug cordset into appropriate, grounded, electrical supply receptacle (AC mains).
3. Connect the DC output cable end to the corresponding connector on the adapter cable.
4. Connect the watertight connector end of the Adapter Cable to the VMXD Off-Vehicle Dock power connector by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely.
5. Press the [Power Switch](#) on the back of the Thor VM3 dock.
6. Press the [Power Button](#) on the front of the Thor VM3 to turn on the Thor VM3.

Table Stand

When the Thor VM3 is used in an office environment, it can be mounted in a table stand. To use the table stand:

1. Attach the RAM ball to the RAM Metal Table Stand with the supplied screws and nuts.
2. If not present, attach a RAM ball to the VMXD off-vehicle dock. If using an external keyboard mount, attach it now. See [Step 2 – Attach RAM Mount Ball to the Thor VM3 Dock](#) for more details.
3. Slide the size D RAM arm over the ball on the table mount.
4. Insert the ball on the dock into the RAM arm and tighten the knob on the RAM arm using the supplied RAM wrench.



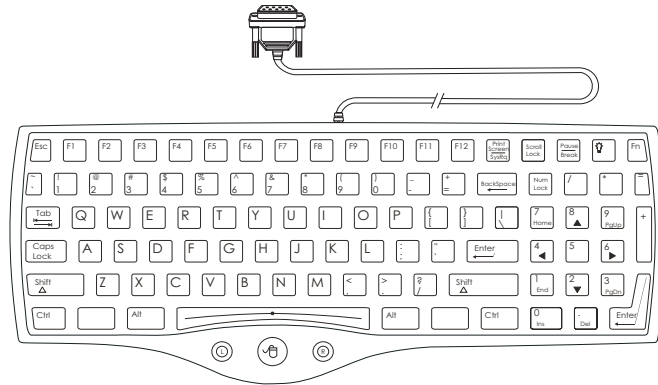
5. If the Thor VM3 is not already mounted to the dock, [Place Thor VM3 in the Dock](#).
6. If mounting the keyboard to the Thor VM3, see [Step 5 – Attach Alphanumeric Keyboard to Mounting Plate \(Optional\)](#) and [Step 6 – Attach Keyboard Assembly to Thor VM3 Assembly \(Optional\)](#).

Connect USB Keyboard

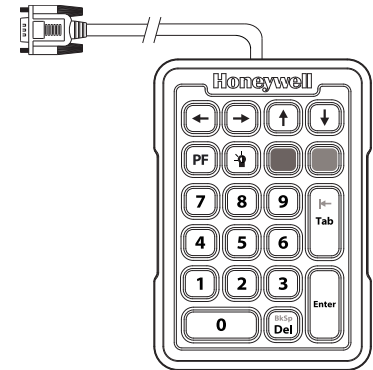
There are two external USB keyboard options

- 95-key keyboard (part number **164288-0001**)
- 21-key numeric keyboard.

These USB keyboards have a D9 connector which attaches to the USB port on the Standard Dock or the USB1 connector on the Enhanced Dock.



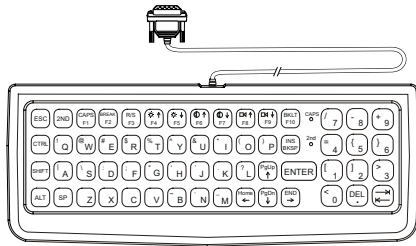
95-Key USB Keyboard
Part number **164288-0001**



21-Key Numeric USB
Keyboard

1. Seat the keyboard cable connector over the USB or USB1 connector on the dock.
2. Tighten the thumbscrews in a clockwise direction. Do not over tighten.
3. Secure the cable to the Thor VM3 with [Strain Relief Cable Clamps](#).

Connect PS/2 Keyboard



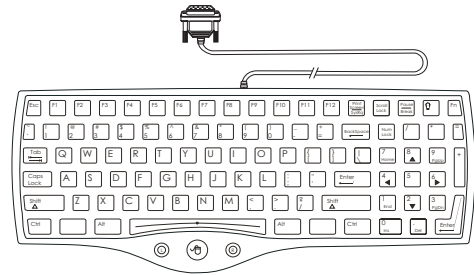
60-Key PS/2 Keyboard

Part number **160068-0001**

Requires PS/2 to USB adapter cable

Not supported on the Thor VM3 with VM1D Standard Dock

Note: *The keyboard backlight must be turned on manually. It does not come on automatically at boot up.*



95-Key PS/2 Keyboard

Part number **160491-0001**

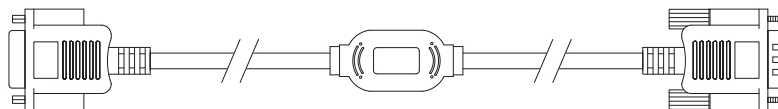
Requires PS/2 to USB adapter cable

Not supported on the Thor VM3 with VM1D Standard Dock

Note: *The mouse function is not supported with this keyboard.*

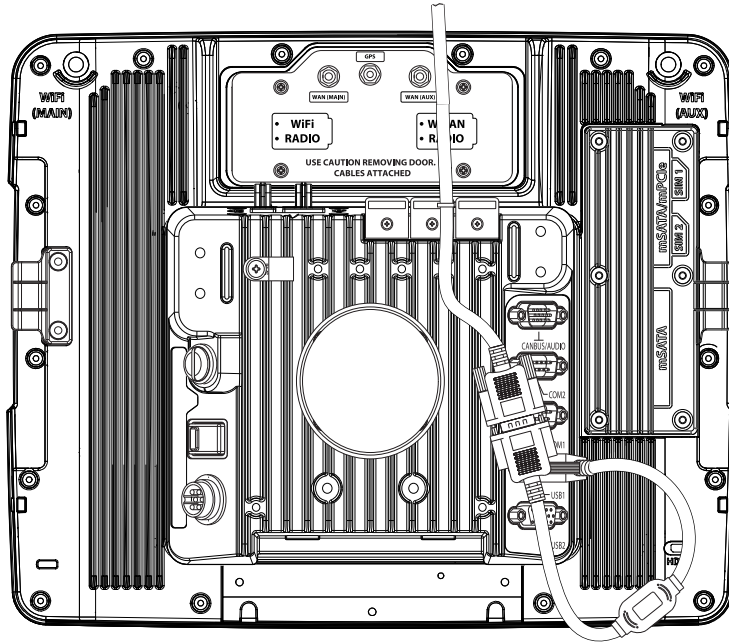
Note: *While the 95-key USB keyboard and the 95-key PS/2 keyboard look similar the installation procedure is different.*

A legacy PS/2 keyboard (used with VX6, VX7, Thor VX8 or Thor VX9), available in either 60-key or 95-key versions can be used with the Thor VM3 via a PS/2 to USB adapter cable. This function is only supported with the VM3D or VMXD Enhanced Docks. It is not supported with the VM1D Standard Dock.



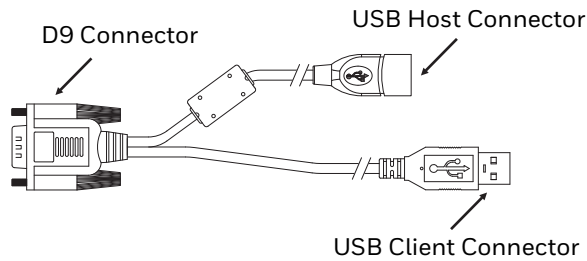
1. Seat the male connector of the cable over the USB connector on the Thor VM3 dock.
2. Tighten the thumbscrews in a clockwise direction. Do not over tighten.
3. Seat the keyboard connector over the female connector of the cable.
4. Tighten the thumbscrews in a clockwise direction. Do not overtighten.

5. Secure the cable to the Thor VM3 with [Strain Relief Cable Clamps](#). The strain relief must capture the keyboard cable.



Connect USB Host

Host / Client Y Cable

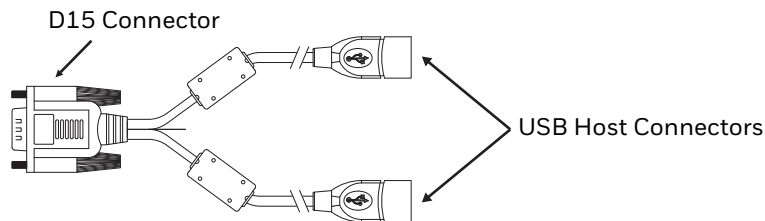


See [USB and USB1 Connector](#) for connector pinouts.

Note: The USB client connection is not available on the Thor VM3.

1. Seat the D9 connector firmly over the USB (Standard Dock) or USB1 (Enhanced Dock) connector on the dock.
2. Tighten the thumbscrews in a clockwise direction. Do not over tighten.
3. The USB-host connector provides a connector for a USB device such as a USB thumb drive.
4. Secure the cables to the Thor VM3 with [Strain Relief Cable Clamps](#).

Dual Host Y Cable



See [USB2 Connector](#) for connector pinouts.

1. Seat the D15 connector firmly over the USB2 (Enhanced Dock only) connector on the dock.
2. Tighten the thumbscrews in a clockwise direction. Do not over tighten.
3. The USB-host connectors provide a connector for a USB device such as a USB thumb drive.
4. Secure the cables to the Thor VM3 with [Strain Relief Cable Clamps](#).

USB Scanner

A USB scanner may be attached to the USB host port.

If using [Enterprise Settings](#) to configure the USB scanner, it may be necessary to unplug the scanner and plug it back into the USB port in order for the auto-detect function to display the scanner settings.

Connect USB Client

Note: *The USB client connection is not used on the Thor VM3.*

Connect Serial Device

Note: Pin 9 of the desired COM port must be configured to provide +5V or RI as needed for the connected device. See the [Options](#) control panel for details.

Note: By default, COM1 and COM2 ports are used by Enterprise Data Collection. To use a COM port for screen blanking, access [Enterprise Settings](#) and set **Data Collection > Tethered Scanners > Tethered Scanner (COMx) - Enable Scanner Port** to off (where COMx is either COM1 or COM2).

See [COM1 and COM2 Connector](#) for connector pinouts.

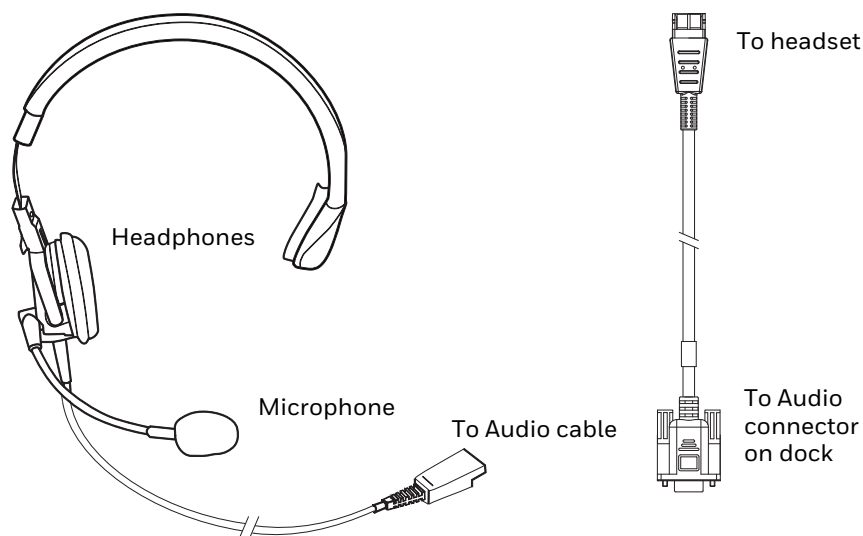
1. Seat the cable end connector firmly over the serial COM port on the dock.
2. Turn the thumbscrews in a clockwise direction. Do not over tighten.
3. Secure the cables to the Thor VM3 with [Strain Relief Cable Clamps](#).
4. Connect the other cable end to the desired serial device.

Connect a Tethered Scanner

1. The scanner cable is attached to either the COM1 or COM2 port on the dock.
2. Connect the serial cable for the scanner as directed above.
3. When the Thor VM3 is powered on, it provides power to the serial scanner.
4. Configure the Data Collection (DC) Wedge to manipulate scanned data as desired.

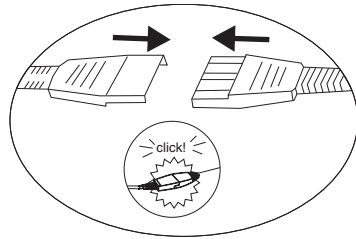
Connect Headset Cable

The CANbus/Audio connector supports a headset adapter cable or a CANbus cable. The Thor VM3 does not support connecting audio and CANbus simultaneously.



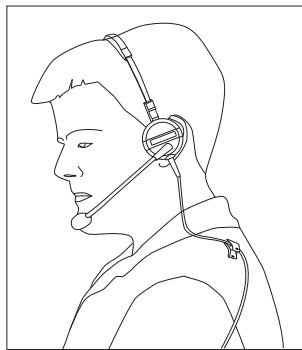
See [CANbus / Audio Connector](#) for connector pinouts.

1. Seat the D15 cable end connector firmly over the CANbus/Audio Connector on the dock.
2. Tighten the thumbscrews in a clockwise direction. Do not over tighten.



3. Slide the cable ends together until they click shut. Do not twist or bend the connectors. The Thor VM3 internal microphone and speakers are automatically disabled when the headset is connected.

Adjust Headset / Microphone and Secure Cable



The headset consists of an earpiece, a microphone, a clothing clip and a cable.

1. Do not twist the microphone boom when adjusting the microphone. The microphone should be adjusted to be about two finger widths from your mouth.
2. Make sure the microphone is pointed at your mouth. Note the small “Talk” label near the mouthpiece. Make sure the Talk label is in front of your mouth. The microphone cable can be routed over or under clothing.
3. Follow the safety guidelines below when wearing the headset.

Under Clothing

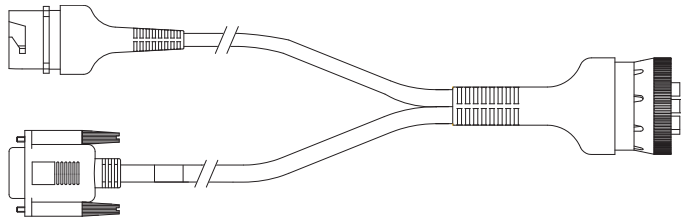
- Leave the cable exposed only at the top of the collar.
- Be sure to leave a small loop of cable to allow movement of your head.

Over Clothing

- Use clothing clips to hold the cable close to your body.
- Tuck the cable under the belt, but leave a small loop where it goes under the belt.
- Do not wear the cable on the front of your body. It may get in your way or get caught on protruding objects.

Connect CANbus Cable

The CANbus/Audio connector supports a headset adapter cable or a CANbus Y cable. The Thor VM3 does not support connecting audio and CANbus simultaneously.



See [CANbus / Audio Connector](#) for connector pinouts.

1. Seat the D15 cable end connector firmly over the CANbus/Audio Connector on the dock.
2. Tighten the thumbscrews in a clockwise direction. Do not over tighten.
3. The CANbus Y cable has a 9 pin F SAE J1939 (Deutsch) and 9 pin M SAE J1939 (Deutsch) connector. Connect the appropriate cable connector as needed.

Install External Antenna

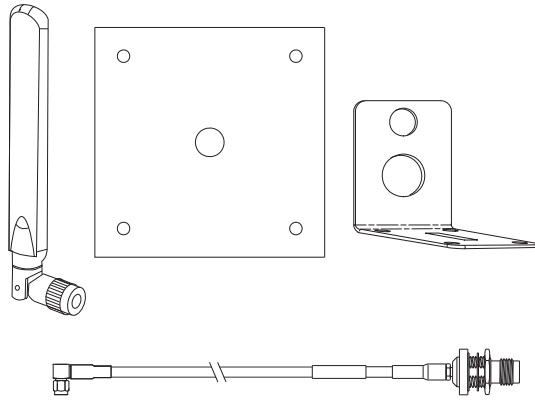
The external antenna cannot be used by devices with an internal antenna.

1. Remove the rubber cap, if present, from the antenna connector before connecting an external antenna.
2. Place the antenna over the antenna connector. If only one antenna is used, be sure to connect it to the Wi-Fi Main connector.
3. Push down and twist the antenna base clockwise until secure.
4. Repeat for second antenna, if used.

Install Remote Antenna

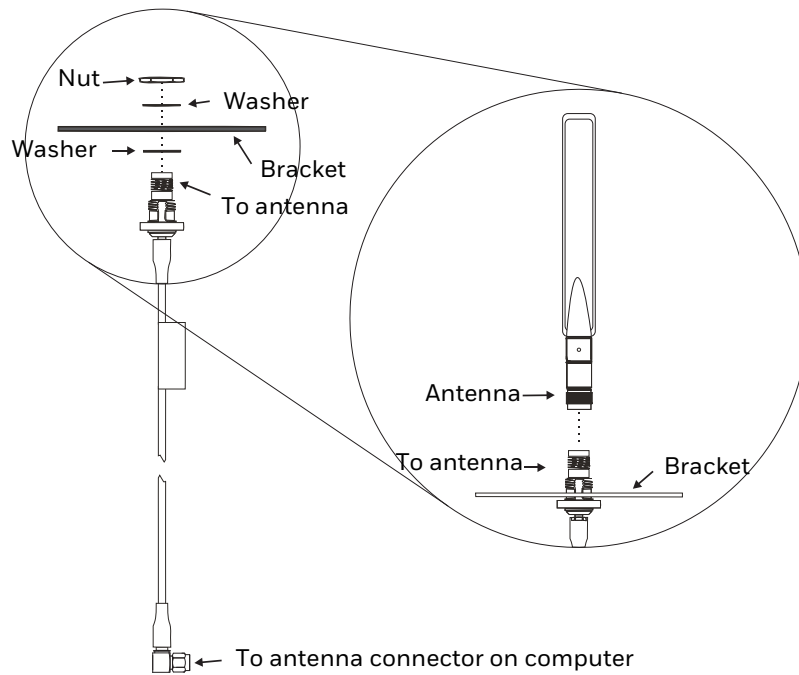
Remote antennas are available for the 802.11 WLAN radio, the WWAN radio and the GPS.

802.11 Remote Mount Antenna

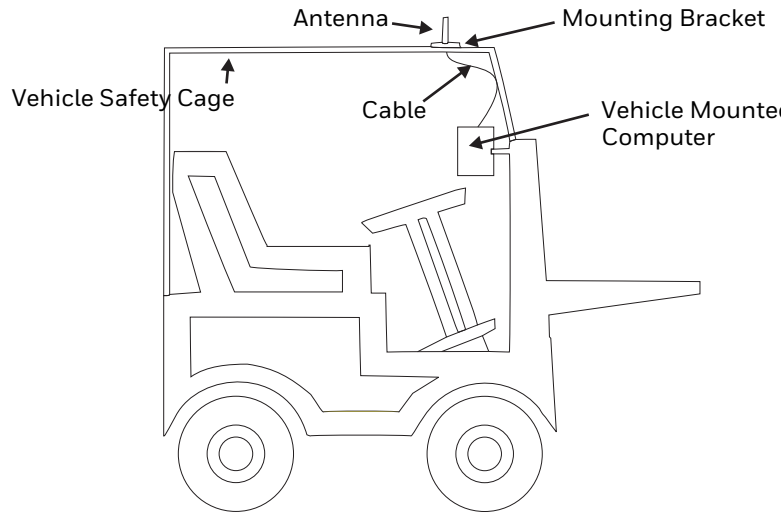


The Remote Antenna Installation Kit consists of two brackets (base plate and right angle), cable, and antenna. Tools are not included. The desired remote antenna bracket is mounted on the top of a forklift, truck or other vehicle and cabled to the Thor VM3 inside the vehicle. The Vehicle Remote Mount Antenna cannot be used by devices with an internal antenna.

Components and Mounting Diagram



Typical Installation



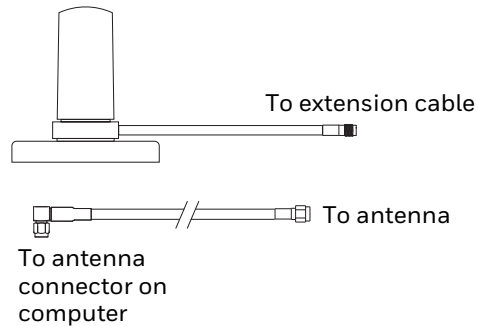
Mounting Instructions

1. Attach and secure the desired mounting bracket to the highest point on the safety cage, following these precautions:
 - The plate must be mounted so the antenna is not damaged while the vehicle or any of its parts are moving.
 - The antenna mounting portion of the bracket must be parallel to the floor.
 - If using two antennas, they must be mounted at least 12 inches (304.8mm) apart.
2. Attach the female connector of the coaxial cable to the antenna connector on the vehicle mounted Thor VM3.
3. Secure the whip antenna to the mounting bracket.
4. Connect the antenna cable to the whip antenna.
5. Use cable ties to secure the coaxial cable to the vehicle as necessary. Make sure the cable is routed so it is not damaged by any moving parts of the vehicle.
6. Connect the cable to the antenna connector (Wi-Fi Main or Wi-Fi Aux) on the Thor VM3. If only one antenna is used, be sure to connect it to the Wi-Fi Main connector.
7. Repeat the steps above for the second 802.11 antenna.

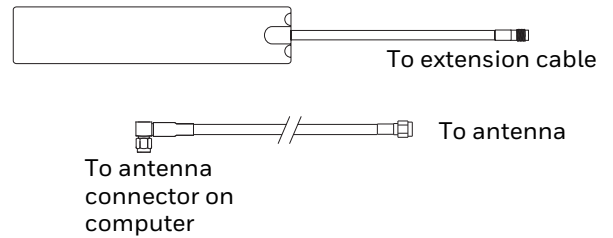
WAN Remote Mount Antenna

The WAN remote mount antenna can be either a magnetic mount or an adhesive mount antenna.

Magnetic Mount WAN Antenna



Adhesive Mount WAN Antenna

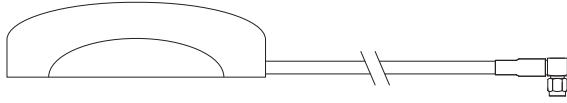


The Remote Antenna Installation Kit consists of the WAN antenna and an extension cable. The remote antenna is mounted on the top of a forklift, truck or other vehicle and cabled to the Thor VM3 inside the vehicle.

1. Locate a mounting position on highest point on the vehicle, following these precautions:
 - The antenna must be mounted so the antenna is not damaged while the vehicle or any of its parts are moving.
2. Clean the area where the antenna is to be mounted.
3. If using an adhesive mount antenna, remove the protective backing paper from the adhesive on the antenna.
4. Position the antenna on the vehicle.
5. Attach the one end of the coaxial cable to the antenna and the other end to the Mobile Net WWAN connector on the vehicle mounted Thor VM3.
6. Use cable ties to secure the coaxial cable to the vehicle as necessary. Make sure the cable is routed so it is not damaged by any moving parts of the vehicle.

GPS Remote Mount Antenna

The external GPS antenna is an adhesive mount antenna.

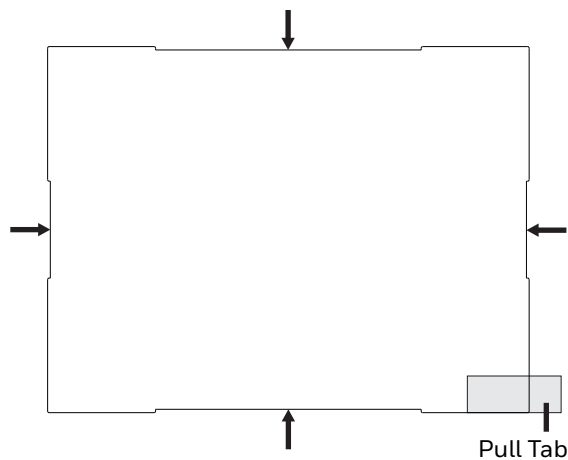


The Remote Antenna Installation Kit consists of the antenna and an integrated cable. The remote antenna is mounted on the top of a forklift, truck or other vehicle and cabled to the Thor VM3 inside the vehicle.

1. Locate a mounting position on highest point on the vehicle, following these precautions:
 - The antenna must be mounted so the antenna is not damaged while the vehicle or any of its parts are moving.
2. Clean the area where the antenna is to be mounted.
3. Remove the protective backing paper from the adhesive on the antenna and position the antenna on the vehicle.
4. Attach the connector on the coaxial cable to the GPS antenna connector on the vehicle mounted Thor VM3.
5. Use cable ties to secure the coaxial cable to the vehicle as necessary. Make sure the cable is routed so it is not damaged by any moving parts of the vehicle.

Apply Touch Screen Protective Film

The optional Thor VM3 touch screen protective film is shipped in packs of 10. The protective film is flexible and treated with an anti-glare coating on the outer surface.



The protective film is slightly larger than the Thor VM3 touch screen, however the notches on the edge of the protective film (indicated by the arrows) correspond to the display size of the Thor VM3. The protective film is not adhesive. The corner edges are designed to fit between the Thor VM3 display and the display housing to hold the protective film in place.

A protective backing is applied to the rear surface of the protective film. A pull tab is attached to the protective backing for easy removal of the protective backing from the film.

Installation

1. Make sure the touch screen is clean and dry before installation. See [Cleaning](#) for instructions on suitable cleaning agents.
2. Pull the release tab to separate the protective backing from the rear of the protective film. Avoid touching the rear side of the protective film while removing the liner.
3. Place the rear side of the protective film against the Thor VM3 display, roughly centering the protective film over the display.
4. Slide the protective film until one corner can be slid back between the touch screen and the display housing as the protective film is re-centered on the display. It may be necessary to press the edges of the protective film against the display to ensure the entire edge slides under the display housing. It is easiest to start with one of the bottom corners.
5. Slide the protective film away from the other bottom corner. The film may bulge slightly away from the Thor VM3 as it is being slid. Only slide the protective film enough so that the protective film can slide under the display housing on that corner when the protective film is returned to center.
6. Repeat with each of the top corners, sliding the protective film away from the corner just enough that the protective film can slide under the display housing when the protective film is returned to center.
7. It may be necessary to flex the protective film during the install, however use care not to flex the protective film so much that the protective film kinks.
8. Once all corners are secure under the display housing, adjust the protective film, if necessary, so it is centered on the touch screen.

Removal

1. To remove the protective film, slide the protective film in one direction until the edge clears.
2. Lift up on the edge of the protective film so it does not slide between the touch screen and display housing when the protective film is slid back to the center.
3. Repeat until all edges are free and remove the protective film.

Disconnect UPS Battery



Caution: The UPS battery must be disconnected before you ship the Thor VM3 or [Replace Front Panel](#).

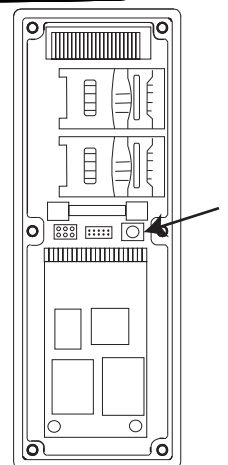
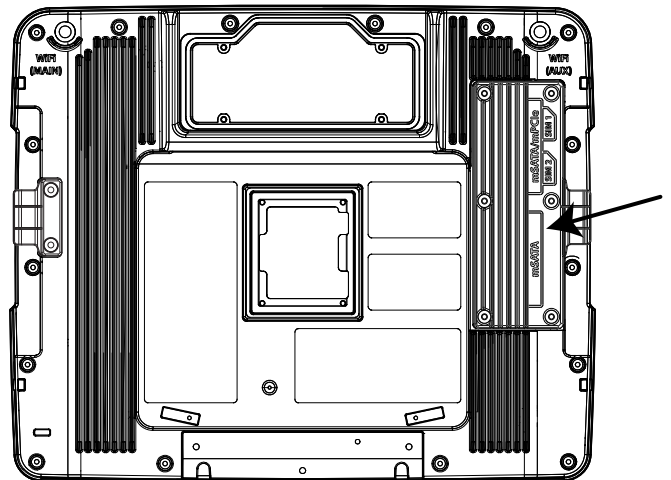
Equipment Required

The following equipment is user-supplied:

- Torquing tool capable of measuring inch pounds
- #2 Phillips screwdriver bit

Disconnect Procedure

1. For convenience, the Thor VM3 can be removed from the dock, though it is not necessary.
2. If the Thor VM3 remains in the dock, disconnect the power cable from the dock.
3. Place the Thor VM3 in Suspend by pressing the Power button.
4. Place the Thor VM3 face down on a stable surface.
5. Use a #2 Phillips bit to loosen the captive M3 screws on the access panel with the mSATA and SIM labels.
6. Locate the small push button located just below the SIM card installation slot.
7. Press the push button to disconnect the UPS. The UPS battery maintains its charge but is disconnected from the power circuitry of the Thor VM3.
8. Reattach the access panel, torquing the M3 screws to 7.0 ± 0.5 inch pounds using a #2 Phillips bit.
9. When the Thor VM3 is attached to external power, the UPS battery is automatically reconnected.
10. Restart the Thor VM3



Install mSATA Drive

Note: *Install SIM Card(s) before installing the mSATA drive.*

An mSATA card slot is provided for storage expansion.



- Only mSATA drives with pin 43 not connected are supported.
- Connecting an mSATA drive with connector pin 43 grounded can result in system instability such as a failure to boot or non-functional accessories such as keyboard or mouse.

Equipment Required

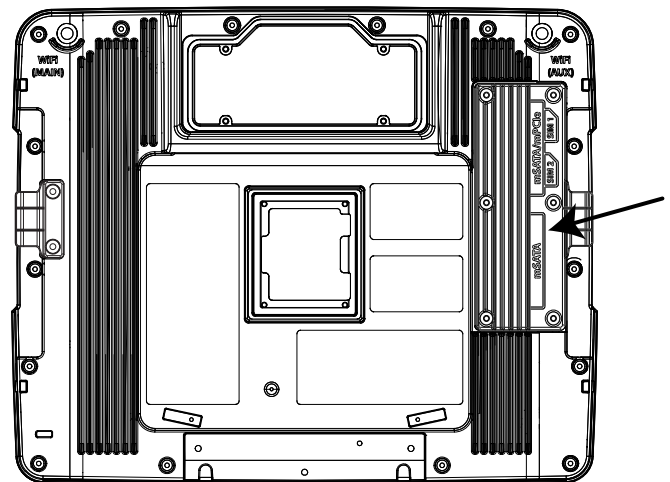
The following equipment is user-supplied:

- Torquing tool capable of measuring inch pounds
- mSATA card

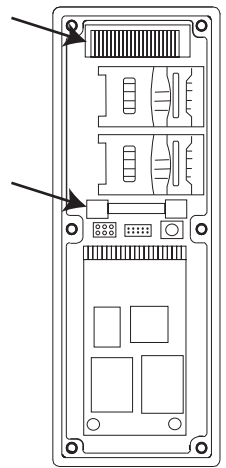
Installation Procedure

Note: *Install any SIM cards before installing the mSATA drive.*

1. Place the Thor VM3 in Suspend by pressing the Power button.
2. Remove the Thor VM3 from the dock.
3. [Disconnect UPS Battery.](#)
4. Place the Thor VM3 face down on a stable surface.
5. Use a #2 Phillips bit to loosen the captive M3 screws on the access panel with the mSATA and SIM labels. This panel is on the right hand side when the Thor VM3 is face down with the top away from the user.



6. Locate the mSATA card installation slot.
7. Tilt the card at a 45° angle and insert the connector end of cards into the slot.
8. Once the connector end is inserted, lower the card until the other end is captured and secured by the anchor pins.
9. Reattach the access panel, torquing the screws to 7.0 ± 0.5 inch pounds.
10. Reinstall the Thor VM3 in the dock.
11. Restart the Thor VM3.
12. When using Windows explorer to view My Computer, the mSATA expansion card is identified as **System2**.



Install SIM Card(s)

The Thor VM3 supports two SIM cards for WWAN switching. The Thor VM3 can switch between carriers, but the WWAN connection is lost during this switch as the first carrier must be disconnected before the second carrier can be connected. See [VM3 WWAN Connection Manager](#) for software configuration.

Note: *The SIM card is not hot-swappable. After installing or removing a SIM card, the Thor VM3 must be rebooted for the change to take effect.*

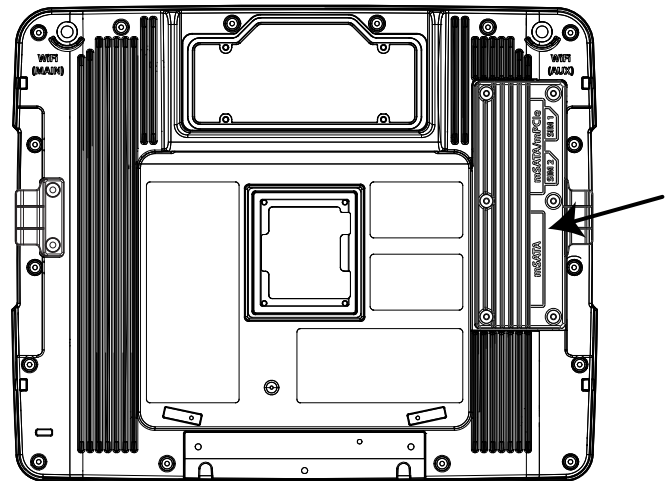
Equipment Required

The following equipment is user-supplied:

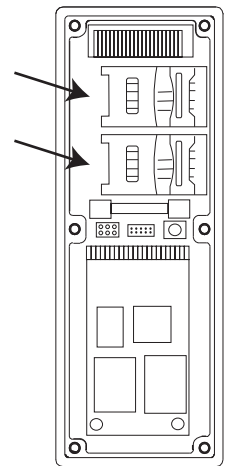
- SIM card(s) for desired carrier(s)
- Torquing tool capable of measuring inch pounds
- #2 Phillips screwdriver bit

Installation Procedure

1. Place the Thor VM3 in Suspend by pressing the Power button.
2. Remove the Thor VM3 from the dock.
3. [Disconnect UPS Battery](#).
4. Place the Thor VM3 face down on a stable surface.
5. Use a #2 Phillips bit to loosen the captive M3 screws on the access panel with the mSATA and SIM labels. This panel is on the right hand side when the Thor VM3 is face down with the top away from the user.

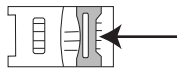


6. Locate the SIM card holders. The [VM3 WWAN Connection Manager](#) identifies the top slot (the slot closest to the top of the Thor VM3 as slot 1 (SIM 1) and the lower slot as slot 2 (SIM 2).

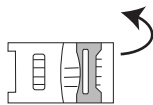


Note: If an mSATA drive has been installed, it is necessary to remove the drive before installing the SIM card(s).

7. Slide the silver retainer clip toward the center of the Thor VM3.



8. After the clip is slid in, lift the outer edge of the SIM holder so it is at a 45° to 90° angle (compared to the circuit board on which it is mounted).

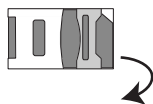


9. Insert the SIM card into the SIM holder.

Note: The SIM card does not have a “spring lock” type holder. Slide the SIM card into the holder but do not push it expecting it to lock into place. The SIM card will be held in place when the card holder is closed.



10. Lower the SIM holder to back to its flat position.



11. Slide the silver retainer clip back toward the outside edge of the Thor VM3. This locks the SIM card in place.



12. Reattach the access panel, torquing the screws to 7.0 ± 0.5 inch pounds.
13. Reinstall the Thor VM3 in the dock.
14. Resume the Thor VM3 from Suspend.

15. Restart the Thor VM3 (**Start > Settings > Control Panel > Registry** and tap the **Restart** button).

Replace Front Panel

Front Panel Options

The front panel of the Thor VM3 is field replaceable. The front panel assembly contains the keypad, touch screen and optional defroster. Should any of these components fail, the front panel assembly can easily be replaced to reduce downtime. The replacement front panel is available in these configurations:

- Standard temperature with resistive touch screen
- Cold storage with resistive touch screen
- Outdoor with resistive touch screen

Note: *The Thor VM3 with Microsoft Windows Embedded Compact operating system does not support PCAP touch screens.*

Equipment Required

The following equipment is user-supplied:

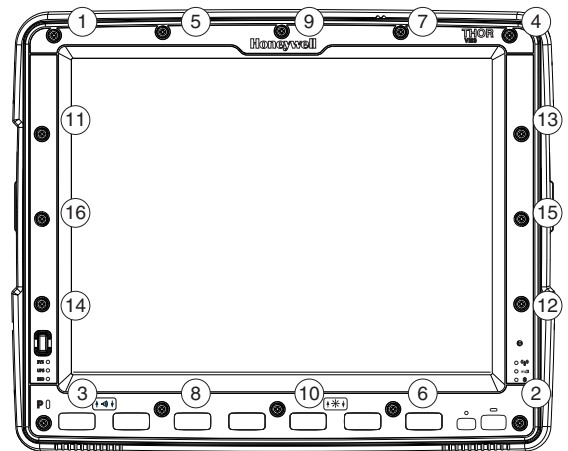
- Torquing tool capable of measuring inch pounds
- #2 Phillips screwdriver bit

Replacement Procedure

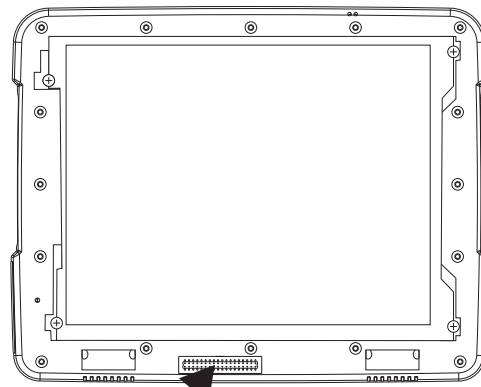


Caution: Before replacing the Thor VM3 front panel, [Disconnect UPS Battery](#).

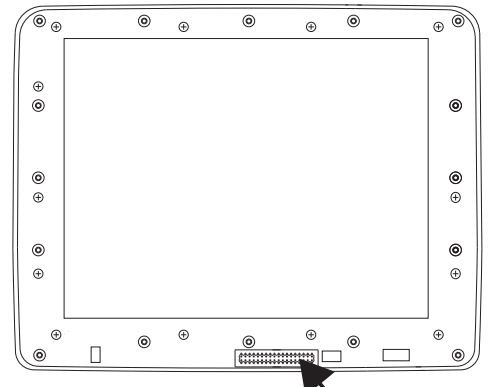
1. Place the Thor VM3 on a clean, well-lit surface before performing the front panel replacement.
2. Place the Thor VM3 in Suspend by pressing the Power button.
3. Remove the Thor VM3 from the dock.
4. [Disconnect UPS Battery](#).
5. Loosen the sixteen (16) captive M3 screws holding the front panel. Use a #2 Phillips bit.



6. Carefully lift the front panel away from the device.



Wiring Connector
on Thor VM3



Wiring Connector
on Front Panel

7. Position the replacement front panel so wiring connector on the back of the front panel lines up with the connector on the Thor VM3.
8. Gently press the front panel into place.
9. Tighten the sixteen (16) captive M3 screws. In the order shown in the top figure above, use a #2 Phillips bit and torque the screws to 7 ± 0.5 inch pounds.
10. Reinstall the Thor VM3 in the dock.
11. When the Thor VM3 is placed in the powered dock, the UPS battery automatically reconnects.
12. Restart the Thor VM3.
13. If adding or removing a defroster, update the Thor VM3 configuration by selecting **Start > Settings > Control Panel > Peripherals** and tap the **Test** button.
14. Close any open control panel windows.
15. Perform a touch screen [Calibration](#).
16. The Thor VM3 is ready for use.

Introduction

There are several different aspects to the setup, configuration and operation of the Thor VM3. Many of the setup and configuration settings are dependent upon the optional features such as hardware and software installed on the unit. The examples found in this section are to be used as examples only, the configuration of your specific Thor VM3 computer may vary. The following sections provide a general reference for the configuration of the Thor VM3 and some of its optional features.

Operating System

Your Thor VM3 operating system is Microsoft® Windows® Embedded Compact 7. The Thor VM3 operating system revision is displayed on the Desktop. This is the default setting for the Desktop Display Background.

Windows Embedded Compact Operating System

This segment assumes the system administrator is familiar with Microsoft Windows options and capabilities loaded on most standard Windows computers.

Therefore, the sections that follow describe only those Windows capabilities that are unique to the Thor VM3 and its Windows environment.

General Windows Embedded Compact Keyboard Shortcuts

Use the keyboard shortcuts in the chart below to navigate with the Thor VM3 keyboard. These are standard keyboard shortcuts for Windows Embedded Compact applications.

Press these keys ...	To ...
CTRL + C	Copy
CTRL + X	Cut
CTRL + V	Paste
CTRL + Z	Undo

Press these keys ...	To ...
DELETE	Delete
SHIFT with any of the arrow keys	Select more than one item in a window or on the desktop, or select text within a document.
CTRL+A	Select all.
ALT+ESC	Cycle through items in the order they were opened.
CTRL+ESC	Display the Start menu.
ALT+Underlined letter in a menu name	Display the corresponding menu.
Underlined letter in a command name on an open menu	Carry out the corresponding command.
ESC	Cancel the current task.

The touch screen provides equivalent functionality to a mouse:

- A touch on the touch screen is equivalent to a left mouse click.
- Many items can be moved by the “drag and drop” method, touching the desired item, moving the stylus across the screen and releasing the stylus in the desired location.
- A double stylus tap is equivalent to a double-click.
- A touch and hold is equivalent to a right mouse click. Some applications may not support this right-click method. Please review documentation for the application to see if it provides for right mouse click configuration.
- Devices with Shift and Ctrl Keys: The Shift and Ctrl keys can be used with the touch screen for multiple selection of items.
- To select disconnected items, press the Ctrl key and then touch each item to be selected in the set. Press the Ctrl key again to terminate this mode.
- To select a connected set of items, press the Shift key, then touch the first item in the series. Touch the last item in the series. Press the Shift key again to terminate the selection mode.

Save Changes to the Registry

The Thor VM3 saves the registry when you:

- Warmboot - either from the Registry control panel, the warmboot command or the reboot keypress sequence.
- Restart - from the Registry control panel
- Suspend/Resume - Either user initiated or upon Suspend timer expiration.
- Shutdown - The registry is saved during a controlled shutdown, such as when the UPS charge reaches a critically low level and external power is not available.

The registry save process takes 0 – 3 seconds. If nothing has been changed, nothing is saved (e.g., 0 seconds).

Software Load

The software loaded on the Thor VM3 consists of Microsoft® Windows® Embedded Compact 7 OS, hardware-specific OEM Adaptation Layer, device drivers, Internet Explorer and utilities. The software supported is summarized below:

- Full Operating System License: Includes all operating system components, including Microsoft® Windows® Embedded Compact 7 kernel, file system, communications, connectivity (for remote APIs), device drivers, events and messaging, graphics, keyboard and touch screen input, window management, and common controls.
- Network and Device Drivers
- Bluetooth

Note: Please contact Honeywell Technical Assistance for software updates and CAB files as they are released by Honeywell.

Software Applications

The following applications are included:

- WordPad
- Enterprise Client Pack
- ActiveSync
- Internet Explorer
- Word Viewer
- Excel Viewer
- PDF Viewer
- PowerPoint Viewer

Note that the viewer applications allow viewing documents, but not editing them.

ActiveSync

ActiveSync is preloaded. Using Microsoft ActiveSync you can copy files from your Thor VM3 to your desktop/laptop and vice versa.

RFTerm (Optional)

Start > Programs > Honeywell RFTerm

RFTerm is preloaded when ordered. The application can also be accessed by double-clicking the RFTerm desktop icon.

Enterprise TE (Optional)

Start > Programs > Enterprise TE

Enterprise TE is preloaded when ordered. The application can also be accessed by double-clicking the Enterprise TE desktop icon.

Music Player

Music Player is supported on the VM3. However, the Save function should not be used due to an issue within this Microsoft product.

Enterprise Client Pack

There are several components of the Enterprise Client Pack installed on the Thor VM3. For more information on these programs visit the Thor VM3 product page at www.honeywellaidc.com.

Enterprise TE

Start > All Programs > Honeywell > Enterprise TE

Optional terminal emulation software. The application can also be accessed by double-clicking the Enterprise TE desktop icon.

Enterprise Browser

Start > All Programs > Honeywell > Enterprise Browser

Optional lock-down web client software. The application can also be accessed by double-clicking the Enterprise Browser desktop icon.

Enterprise Browser is designed for users running web-based applications to limit access to other applications, web sites, or other parts of the operating system

Enterprise Browser can be used alone or with Launcher.

Launcher

Start > All Programs > Honeywell > Launcher

Optional lock-down menu software. The application can also be accessed by double-clicking the Launcher desktop icon.

End users must log in and can only access authorized programs.

Launcher can be used alone or with Enterprise Browser.

CloneNGo

To launch CloneNGo, double-click the CloneNGo icon on the desktop.

For information on using CloneNGo on the Thor VM3, refer to the CloneNGo User Guide available at www.honeywellaidc.com.

Thor VM3 Utilities

The following files are preloaded.

LAUNCH.EXE

Launch works in coordination with registry settings to allow drivers or applications to be loaded automatically into DRAM at system startup. Registry settings control what gets launched; see the App Note for information on these settings. For examples, you can look at the registry key

```
HKEY_LOCAL_MACHINE \ Software \ HSM \ Persist
```

Launch will execute .CAB files, .BAT files, or .EXE files.

App Note

All applications to be installed into persistent memory must be in the form of CAB files. These CAB files exist as separate files from the main installation image, and are copied to the device using ActiveSync, or using removable media such as a USB drive. The CAB files are copied from into the folder System, which is the persistent storage virtual drive. Then, information is added to the registry, if desired, to make the CAB file auto-launch at startup.

The registry information needed is under the key HKEY_LOCAL_MACHINE \ Software \ HSM \ Persist, as follows. The main subkey is any text, and is a description of the file. Then four mandatory values are added:

FileName is the name of the CAB file, with the path (usually \System).

Installed is a DWORD value of 0, which changes to 1 once auto-launch installs the file.

FileCheck is the name of a file to look for to determine if the CAB file is installed. This will be the name of one of the files (with path) installed by the CAB file. Since the CAB file installs into DRAM, when memory is lost this file is lost, and the CAB file must be reinstalled.

Order is used to force a sequence of events. Order=0 is first, and Order=99 is last. Order must be greater than 4 for the Thor VM3. Two items which have the same order will be installed in the same pass, but not in a predictable sequence.

There are two optional fields that may be added:

1. Delay is used to add a delay after the item is loaded, before the next is loaded. The delay is given in seconds, and defaults to 0 if not specified. If the install fails (or the file to be installed is not found), the delay does not occur.
2. PCMCIA is used to indicate that the file (usually a CAB file) being loaded is a radio driver, and the PCMCIA slots should be started after this file is loaded. By default, the PCMCIA slots are off on powerup, to prevent the "Unidentified PCMCIA Slot"

dialog from appearing. Once the drivers are loaded, the slot can be turned on. The value in the PCMCIA field is a DWORD, representing the number of seconds to wait after installing the CAB file, but before activating the slot (a latency to allow the thread loading the driver to finish installation). The default value of 0 means the slot is not powered on. The default values for the default radio drivers (listed below) is 1, meaning one second elapses between the CAB file loading and the slot powering up.

The auto-launch process proceeds as follows:

1. The launch utility opens the registry database and reads the list of CAB files to auto-launch.
2. First it looks for FileName to see if the CAB file is present. If not, the registry entry is ignored. If it is present, and the Installed flag is not set, auto-launch makes a copy of the CAB file (since it gets deleted by installation), and runs the Microsoft utility WCELOAD to install it.
3. If the Installed flag is set, auto-launch looks for the FileCheck file. If it is present, the CAB file is installed, and that registry entry is complete. If the FileCheck file is not present, memory has been lost, and the utility calls WCELOAD to reinstall the CAB file.
4. Then, the whole process repeats for the next entry in the registry, until all registry entries are analyzed.
5. To force execution every time (for example, for AUTOEXEC.BAT), use a FileCheck of “dummy”, which will never be found, forcing the item to execute.
6. For persist keys specifying .EXE or .BAT files, the executing process is started, and then Launch will continue, leaving the loading process to run independently. For other persist keys (including .CAB files), Launch will wait for the loading process to complete before continuing. This is important, for example, to ensure that a .CAB file is installed before the .EXE files from the .CAB file are run.
7. Note that the auto-launch process can also launch batch files (*.BAT), executable files (*.EXE), registry setting files (*.REG), or sound files (*.WAV). The mechanism is the same as listed above, but the appropriate application is called, depending on file type.

Note: Registry entries may vary depending on software revision level and options ordered with the Thor VM3.

LAUNCH.EXE and Persistent Storage

If any of the following directories are created in the System folder, Launch automatically copies all of the files in these directories:

System\Desktop	copied to	Windows\Desktop
System\Favorites	copied to	Windows\Favorites
System\Fonts	copied to	Windows\Fonts
System\Help	copied to	Windows\Help
System\Programs	copied to	Windows\Programs
AppMgr	copied to	Windows\AppMgr

Recent	copied to	Windows\Recent
--------	-----------	----------------

This function copies only the folder contents, no sub-folders.

The Windows\Startup folder is not copied on startup because copying this folder has no effect on the system or an incorrect effect.

Files in the Startup folder are executed, but only from System\Startup. Windows\Startup is parsed too early in the boot process so it has no effect.

Executables in System\Startup must be the actual executable, not a shortcut, because shortcuts are not parsed by Launch.

Note: *Files in the Startup folder are executed, but only from System > Startup. They are not copied to another folder.*

REGEDIT.EXE

Registry Editor – Use caution when editing the Registry. Make a backup copy of the registry before changes are made.

WARMBOOT.EXE

Double-click this file to warm boot the computer (i.e., all RAM is preserved). It automatically saves the registry before rebooting which means configuration changes are not lost.

Thor VM3 Command-line Utilities

Command line utilities can be executed by Start > Run > [program name].

PrtScrn.EXE

Command line utility which performs a screen print and saves the file in .BMP format in the \System folder. Tap Start > Run and type prtskrn and tap OK, or press Enter. There is a 10 second delay before the screen print is made. The device beeps and the screen captured file (scrnnnnn.bmp) is placed in the \System folder. The numeric filename is incremented by 1 each time the PrtScr function is activated. The command is not case-sensitive.











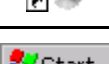
Desktop

The Thor VM3 Desktop appearance is similar to that of a desktop PC running a Windows operating system.

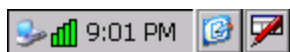
At the bottom of the screen is the Start button. Tapping the Start Button causes the [Start Menu](#) to display. It contains the standard Windows menu options: Programs, Favorites, Documents, Settings, Help, and Run.

Desktop Icons

At a minimum, the desktop displays icons for My Device, Internet Explorer and the Recycle Bin. Following are a few of the other icons that may be on the Thor VM3 Desktop. Contact [Technical Assistance](#) about the latest updates and upgrades for your operating system.

Icon	Function
	Access files and programs.
	Storage for files that are to be deleted.
	Storage for downloaded files / applications.
	Displays web pages from the Internet/Intranet.
	Used for access the WLAN Wireless Configuration Utility (WCU) .
	RFTerm is an optional terminal emulation program. When RFTerm is installed, this icon is displayed on the desktop.
	Enterprise TE is an optional terminal emulation program. When Enterprise TE is installed, this icon is displayed on the desktop.
	Launcher is lock-down menu software used to restrict users to only authorized programs.
	Enterprise Browser is a lock-down web client software used to restrict user's access to other applications, web sites and the operating system.
	HTML5 Browser is for web applications designed to run on-line, off-line or a combination.
	Bluetooth scanning is sued to discover and pair certain Bluetooth scanners.
	A shortcut to the Remote Desktop Connection utility.
	Start button. Access programs, select from the Favorites listing, documents last worked on, change/view settings for the control panel or taskbar, on-line help or run programs.

Taskbar



The number and type of icons displayed are based on the device type, installed options and configuration of the Thor VM3.

My Device Folders

Folder	Description	Preserved upon Reboot?
Application Data	Data saved by running applications	No
My Documents	Storage for downloaded files / applications	No
Network	Mounted network drive	No
Program Files	Applications	No
System	Internal mSATA (CAB file storage)	Yes
Temp	Location for temporary files	No
Windows	Operating System in Secure Storage	No

Internet Explorer

Start > Programs > Internet Explorer

There are a few changes in the Windows Embedded Compact version of Internet Explorer as it relates to the general desktop Windows PC Internet Explorer options. Tap the “?” button to access Internet Explorer Help.

Start Menu

The following list represents a typical factory default program installation. Your system may contain different items from those shown below, based on the software and hardware options purchased.

Communication	Stores Network communication options
Start (or Stop) FTP Server	Begin / end connection to FTP server
Command Prompt	The command line interface in a separate window
Internet Explorer	Access web pages on the Internet/Intranet
File Viewers	
JETCET PDF Viewer	View Adobe PDF Documents
Excel Viewer	View Excel and compatible documents
PowerPoint Viewer	View PowerPoint and compatible documents
Word Viewer	View Word and compatible documents
Microsoft WordPad	Opens an ASCII notepad
Remote Desktop Connection	Log on to a Windows Terminal Server
Honeywell RFTerm	Option. Terminal emulation application.
Enterprise Browser	Lock down software.
Enterprise TE	Terminal emulation application.
HTML5 Browser	Lock-down menu software.
Launcher	Browser for web applications.
Settings	Access to all Control Panels, a shortcut to the Network and Dialup Control Panel and access to Taskbar options.

Windows Explorer

File management program

- If installed, RFTerm runs automatically at the conclusion of each reboot.
- The wireless client connects automatically during each reboot.
- Bluetooth re-connects to nearby paired devices automatically at the conclusion of each reboot.

Communication

Start > Programs > Communication

Start FTP Server / Stop FTP Server

Start > Programs > Communication > Start (or Stop) FTP Server

These shortcuts call the Services Manager to start and stop the FTP server. The server defaults to Off (for security) unless it is explicitly turned on from the menu.

Command Prompt

Start > Programs > Command Prompt

Type help cmd at the command prompt to view valid Pocket PC (Console) commands.

Exit the command prompt by typing exit at the command prompt or tap File > Close.

Internet Explorer

Start > Programs > Internet Explorer

There are a few changes in the Windows Embedded Compact version of Internet Explorer as it relates to the general desktop Windows PC Internet Explorer options. Tap the “?” button to access Internet Explorer Help.

Media Player

Start > Programs > Media Player

There are few changes in the Windows Embedded Compact version of Media Player as it relates to the general desktop Windows PC Microsoft Media Player options.

After the Media Player application is running, click the ? button to access Media Player Help.

File Viewers

The following applications are included:

- JETCET PDF Viewer

- Excel Viewer
- PowerPoint Viewer
- Word Viewer

Note: *The viewer applications allow viewing documents, but not editing them.*

Microsoft WordPad

Start > Programs > Microsoft WordPad

Create and edit documents and templates in WordPad, using buttons and menu commands that are similar to those used in the desktop PC version of Microsoft WordPad.

By default WordPad files are saved as .PWD files. Documents can be saved in other formats e.g., .RTF or .DOC.

Tap the ? button to access WordPad Help.

Remote Desktop Connection

Start > Programs > Remote Desktop

There are few changes in the Windows Embedded Compact version of Remote Desktop as it relates to the general desktop Windows PC Microsoft Remote Desktop options.

If installed, Remote Desktop on the Thor VM3 can be accessed by Start > Programs > Remote Desktop.

Select a computer from the drop down list or enter a host name and tap the Connect button.

Tap the Options >> button to access the General, Display, Local Resources, Programs and Experience tabs. Tap the ? button to access Remote Desktop Connection Help.

Settings

Start > Settings

The Settings menu option may include the following:

Control Panel	All control panels
Network and Dialup Connections	Shortcut to control panel. Connect to a network, create a new connection, and adjust parameters for client connections.
Taskbar	Set Taskbar parameters

Windows Explorer

Start > Programs > Windows Explorer

There are a few changes in the Windows Embedded Compact version of Windows Explorer as it relates to the general desktop PC Windows Explorer options. Tap the “?” button to access Windows Explorer Help.

Taskbar

Start > Settings > Taskbar

There are a few changes in the Windows Embedded Compact version of Taskbar as it relates to the general desktop PC Windows Taskbar options.

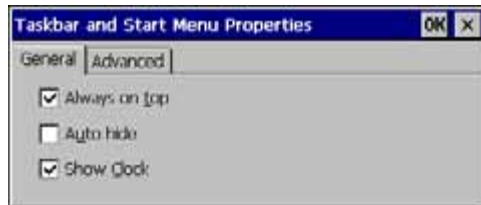
When the taskbar is auto hidden, press the Ctrl key then the Esc key to make the Start button appear.

Clicking the Taskbar option on the Settings menu displays the General and Advanced Taskbar tabs.

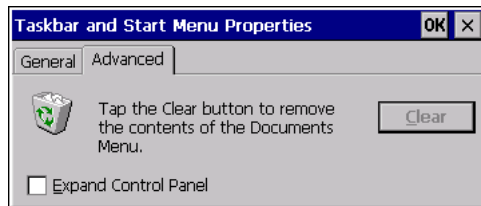
General

Factory Default Settings

Always on Top	Enabled
Auto hide	Disabled
Show Clock	Enabled



Advanced



Expand Control Panel

Tap the checkbox to have the Control Panel folders appear in drop down menu format from the Settings > Control Panel menu option.

Clear Contents of Document Folder





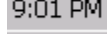



Tap the ton to remove the contents of the Document folder.

Taskbar Icons

As Thor VM3 devices and applications open and change state, icons are placed in the Taskbar. In most cases, tapping the icon in the Taskbar opens the related application.

Refer to Start > Help for an explanation of standard Windows Embedded Compact taskbar icons.

Following are a few of the Thor VM3 taskbar icons that may appear in the Taskbar. These icons are in addition to the Windows Embedded Compact taskbar icons.

	Wireless Zero Config Inactive / Connected / Not Connected. Clicking on the icon opens the Wireless Zero Config utility.
	ActiveSync connection
	UPS battery charge indicator. Percent of battery charge is indicated.
	External power connected / connected and UPS battery charging.
	Current time. Clicking the time display opens the Date / Time control panel.
	Click this icon to return to the Desktop.
	Input method, keyboard / input panel.
	CapsLock active.

Thor VM3 OS Upgrade

Introduction

Depending on the size of the operating system, the total time required for a successful upgrade may require several minutes.

There may be firmware and BIOS upgrades available for the Thor VM3. Contact [Technical Assistance](#) for upgrade information and instructions. In some cases, it may be necessary to upgrade firmware before upgrading the operating system.



Caution: The Thor VM3 must be connected to external power before upgrading the BIOS, firmware or operating systems. If the Thor VM3 is operating on UPS battery power, the upgrade process does not initiate and the Thor VM3 is not upgraded.

Preparation

- Contact [Technical Assistance](#) to get the OS upgrade files.
- Honeywell Technical Assistance may advise you that additional upgrades such as BIOS or firmware are required before upgrading the OS. Please follow any additional upgrade instructions provided by Technical Assistance.

- Use ActiveSync to back up Thor VM3 user files and store them elsewhere before beginning an upgrade on the Thor VM3.
- Maintain an uninterrupted AC/DC power source to the Thor VM3 throughout this process.
- The mSATA card with the OS and systems files must be present for the Thor VM3 to boot.
- Always perform OS updates when the Thor VM3 has a dependable external power source connected to the Thor VM3.

Procedure

1. Verify a dependable power source is applied to the Thor VM3 and will stay connected during the upgrade procedure.
2. Copy the OS files to a USB thumb drive.
3. Copy the files from the USB drive to the Thor VM3's System folder.
4. During the file copy process to the Thor VM3 System folder, when asked "Overwrite?", select Yes to All.
5. Review the files that were downloaded to the System folder.
6. Remove the USB drive.
7. Restart the Thor VM3.
8. When the OS finishes loading, check the OS update version by selecting Start > Settings > Control Panel > About > Software tab.

The touch screen may require calibration, however some Windows OS versions save the calibration data, eliminating the need to calibrate.

If the Thor VM3 won't boot up after the upgrade is finished, contact [Technical Assistance](#) for re-imaging options.

BIOS

The Microsoft Windows Embedded Compact operating system is installed before shipping. The default BIOS parameters are configured at that time. In most cases, it is unnecessary to modify the BIOS parameters.

Generally, it is only necessary to enter the BIOS setup to change the boot order of the drives.

This section is not intended to detail all features of the BIOS, instead it is intended to cover the most commonly used setup options.



Caution: Be very careful when using this utility to modify BIOS Setup parameters. The Thor VM3 may generate unexpected results when incorrect or conflicting parameter values are entered. Selecting incorrect or invalid options may require the Thor VM3 to be returned for repairs. The parameters should only be modified by Information Services personnel or the system administrator.

Accessing the BIOS Setup

To access and modify the BIOS on the Thor VM3, an external keyboard must be attached.

When the Press F2 for System Utilities prompt is displayed at power up, press the P2 key on the Thor VM3 or the F2 key on an external keyboard to enter BIOS setup.

Use the arrow keys to move around the screen.

Boot Order

To view or edit the boot order, select the Boot tab.

By default, the first device in the boot order is USB Hard Drive.

The boot drive can also be selected at bootup. Press P5 from the Thor VM3 keypad or press F5 from an external keyboard. Use the arrows on the external keypad to make a selection. This does not change the default boot order and the next bootup will return to the default drive without user intervention.

Exiting BIOS Setup

To exit the BIOS setup, select the Exit tab and select one of these options:

- Exit Saving Changes
- Exit Discarding Changes
- Load Setup Defaults for WEC 7 (do not use options for other operating systems as this can cause unexpected results)

Control Panel

Start > Settings > Control Panel or My Device > Control Panel

Tap the ? button for Help when changing Thor VM3 Control Panel options.

Option	Function
About	Software, hardware, versions and network IP. No user intervention allowed.
Accessibility	Customize the way the keyboard, audio, display or mouse function for users with hearing or viewing difficulties.
Battery	View voltage and status of the internal UPS battery.
Bluetooth Printing	Discover and pair Bluetooth printers.
Bluetooth Scanning	Discover and pair Bluetooth scanners.
Certificates	Manage digital certificates used for secure communication.
Date / Time	Set Date, Time, Time Zone, and Daylight Savings.
Dialing	Connection setup for modem attached to COM port or CompactFlash slot. CompactFlash slot not available for modem use on Thor VM3.
Display	Set background graphic and scheme. Set touch screen and keypad backlight properties and timers.
Enterprise Settings	Configure data collection, Bluetooth, certain applications, etc.
Error Reporting	Reports software errors to Microsoft.
Input Panel	Select the current key / data input method. Select custom key maps.
Internet Options	Set General, Connection, Security, Privacy, Advanced and Popups options for Internet connectivity.
Keyboard	Set key repeat delay and key repeat rate.
Keyboard Remapper	Remap programmable keys on Thor VM3 front panel or keys on an external USB keyboard.
Mixer	Adjust the input and output parameters – volume, sidetone, and record gain, for headphone, software and microphone.
Mouse	Set the double-tap sensitivity for stylus taps on the touch screen.
Network and Dialup Connections	Set network driver properties and network access properties.
Network Capture	Set network logging options.
Options	Set various device specific configuration options.
Owner	Set the mobile device owner details (name, phone, etc.). Enter notes. Enable / disable Owner display parameters. Enter Network ID for the device – user name, password, domain.
Password	Set OS access password properties for signon and/or screen saver.
PC Connection	Control the connection between the mobile device and a local desktop or laptop computer.
Peripherals	Enable or disable touch screen defroster (heater), if installed.
Power	Set power scheme properties. Review device status.
Power Configuration Mode	Set power configuration mode.
Regional Settings	Set appearance of numbers, currency, time and date based on country region and language settings.

Option	Function
Registry	Load or save user defaults, load factory defaults, warmboot or restart.
Remove Programs	Select to remove specific user installed programs in their entirety.
Screen Control	Configure screen blanking.
Storage Manager	Displays the available storage drives.
Stylus	Set double-tap sensitivity properties and/or calibrate the touch panel.
System	Review System and Computer data and revision levels. Adjust Storage and Program memory settings. Enter device name and description. Review copyright notices.
Terminal Server Client Licenses	Select a server client license from a drop down list.
Volume and Sounds	Enable / disable volume and sounds. Set volume parameters and assign sound WAV files to events.
ZoomZone	Configures screen blanking.

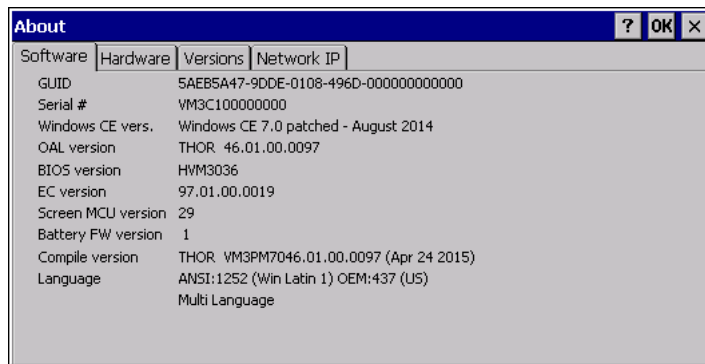
About

Start > Settings > Control Panel > About

The data cannot be edited by the Thor VM3 user on these panels.

Tab	Contents
Software	GUID, Serial Number, Windows Embedded Compact Version, OAL Version, Compile Version, and Language. Language indicates localized version.
Hardware	CPU Type, Codec Type, Display, and DRAM memory
Versions	Revision level of software modules and .NET Compact Framework Version.
Network IP	Current network connection IP and MAC address.

Software



Firmware Versions

The Software tab lists the firmware versions installed. The BIOS, EC and Screen MCU firmware versions are shown on this tab.

Language

The Software tab displays the localized language version of the OS image. The language is identified as English only or + an additional language.

The languages are ordered separately and built-in to the OS image. The Thor VM3 may be preloaded with an English only OS. Contact [Technical Assistance](#) for information on installing an OS for a different language. The built-in languages are added to registry entries and are available immediately upon startup.

Versions

The Versions tab displays the versions of many of the software programs installed. Not all installed software is included in this list and the list varies depending on the applications loaded on the Thor VM3. The Image line displays the revision of the system software installed. Refer to the last three digits to determine the revision level.

Versions Tab and the Registry

The Versions tab displays program version details from the registry.

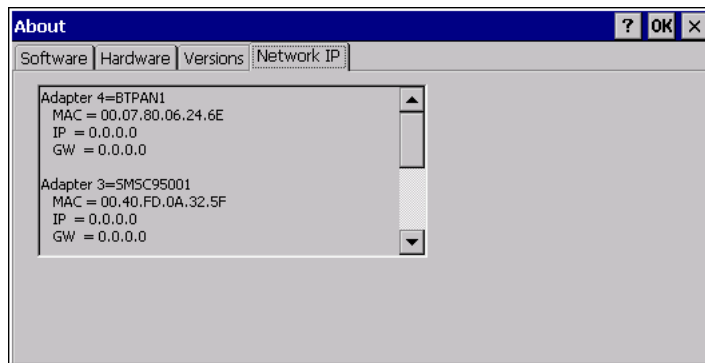
Customized information can be displayed by modifying the Registry using the Registry Editor. Use caution when editing the Registry and make a backup copy of the registry before changes are made.

The registry settings for the Version tab are under HKEY_LOCAL_MACHINE \ Software \ HSM \ Version in the registry.

To add a user application to the Version panel, create a new string value under the HKLM\Software\HSM\Version key. The string name should be the Application name to appear in the Version window. The data for the value should be the version number to appear in the Version window.

Version strings can be equal to or less than 254 characters. Because the strings are displayed in a text box, any number can be accommodated, up to the 64K byte text box limitation.

Network IP



MAC Address

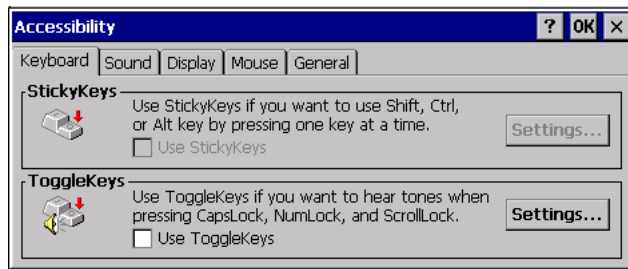
The Network IP tab displays the MAC address of the network card(s) such as the WLAN radio and the Bluetooth module.

Accessibility

Start > Settings > Control Panel > Accessibility

Customize the way the Thor VM3 keyboard, sound, display, mouse, automatic reset and notification sounds function. There are a few changes from general Windows desktop Accessibility options.

Tab	Contents
Keyboard	Sticky Keys - Disabled (cannot be enabled). ToggleKeys - Disabled by default. Tap the Use ToggleKeys checkbox to enable this option. Tap the Settings button to view or change parameters.
Sound	SoundSentry is disabled by default. Tap the Use SoundSentry checkbox to enable this option. Tap the Settings button to view or change parameters.
Display	High Contrast is disabled by default. Tap the Use High Contrast checkbox to enable this option. Tap the Settings button to view or change parameters.
Mouse	MouseKeys is disabled by default. Tap the Use MouseKeys checkbox to enable this option. Tap the Settings button to view or change parameters.
General	Automatic reset is disabled by default. Tap the Turn off accessibility features checkbox to enable this option and use the dropdown option to assign a timer. Notification is enabled by default. Sounds are emitted when turning a feature on or off.



The following exceptions are due to a limitation in the Microsoft Windows Embedded Compact operating system:

- If the ToggleKeys option is selected, please note that the ScrollLock key does not produce a sound as the CapsLock and NumLock keys do.
- If the SoundSentry option is selected, please note that ScrollLock does not produce a visual warning as the CapsLock and NumLock keys do.

Battery

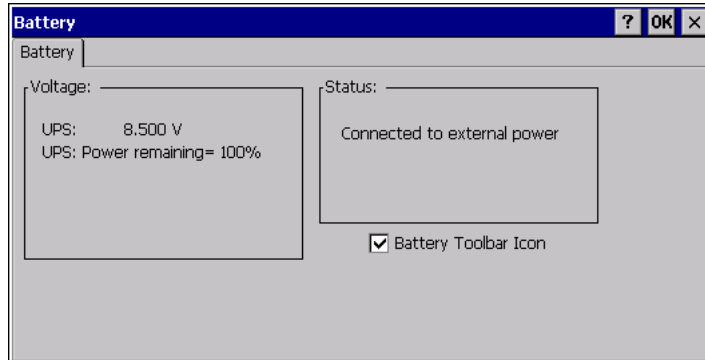
Start > Settings > Control Panel > Battery

This panel is used to view the status and percentage of power remaining in the Thor VM3 UPS battery.



The battery gas gauge icon resides in the system tray and shows four levels of charge – 100%, 75%, 50%, 25%. At a point below 25% the gas gauge icon will turn red indicating the battery is low. The battery gauge icon is enabled by default, but can be disabled on the Thor VM3 Battery control panel. The UPS LED turns red when there is approximately 2 minutes of run time remaining.

The Status box indicates if the UPS battery is receiving external power.



Bluetooth Printing

Start > Settings > Control Panel > Bluetooth Printing

To configure your computer for Bluetooth wireless printing, you need to:

- Create an application that opens the wireless printing COM port on your computer. For help, see the Bluetooth Resource Kit, which is part of the Intermec Developer Library (IDL), available from the Intermec website at www.intermec.com/idl.
- Select the current wireless printer on your computer. For help, see the Printer Options section of [Enterprise Settings](#)

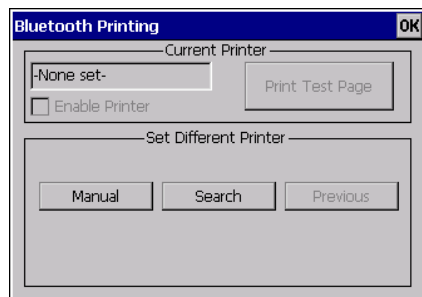
Note: You can also print wirelessly using Microsoft APIs with Bluetooth extensions for Winsock and Bluetooth. For help, see the Bluetooth Resource Kit documentation.

The Bluetooth Printing wizard supports the following Honeywell printers:

- PR2
- PR3
- PB31
- PB21
- PB42
- PB50

To connect a printer using the search option:

1. Turn on the printer.
2. Select Bluetooth Printing from the control panel.

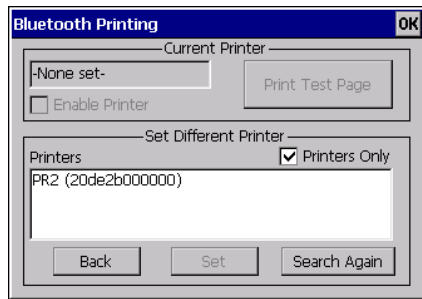


3. Tap Search.

Note: The printer can also be specified by taping the Manual button and entering the MAC address of the printer.

4. A list of available Bluetooth printers is displayed.

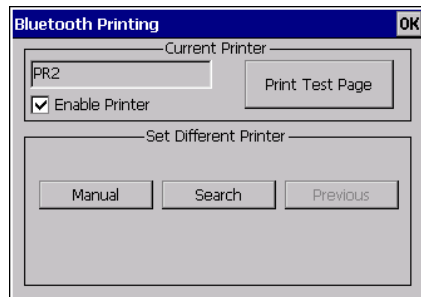
Note: By default only printers are displayed in the search results.



5. Select the desired printer from the list and tap the Set button.
6. If this is the first time a printer is connected, it may take 40–45 seconds for the driver to install.
7. If no error message is displayed, the printer is ready. If an error message is displayed, the timeout may have happened before the driver installation has completed.

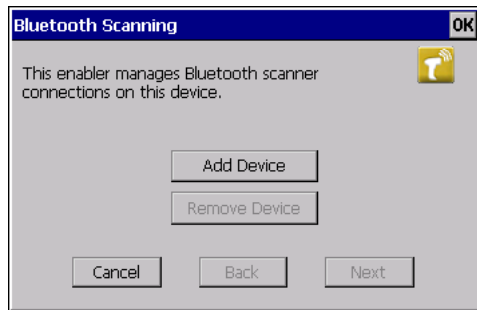
To continue after this error:

- Dismiss the error.
 - Return to the Bluetooth Printing control panel and repeat the process starting with step 3.
8. The Bluetooth printer is shown. Print a test page if desired.



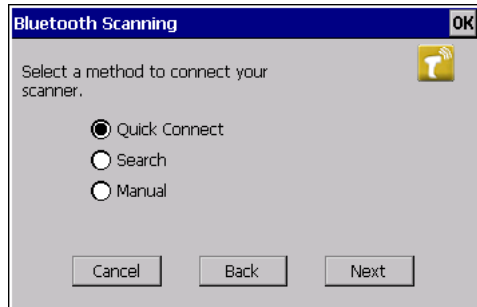
Bluetooth Scanning

Start > Settings > Control Panel > Bluetooth Scanning



Tap Add Device for the available options:

- [Quick Connect](#)
- [Search](#)
- [Manual Connect](#)



Quick Connect

There are two different bar codes printed on decals on the side of the Thor VM3.

Note: The bar codes below are samples. Do not scan these to connect a Bluetooth scanner. Scan the bar code on your device.

LnkB00078006111AAA



LnkB Bar Code Sample

Bluetooth Quick Connect 007806111AAA



Quick Connect Bar Code Sample

Using Quick Connect with Preprinted Labels

Scan the applicable bar code as indicated below:

Use the **LnkB bar code** on either side of the Thor VM3 to connect the following scanners:

- Honeywell/LXE 8650 family of Bluetooth ring scanners

- Honeywell Granit 1911i Bluetooth scanner
- Honeywell Granit 1981i Bluetooth scanner
- LXE 88x0 family of Bluetooth scanners

Use the bar code **Quick Connect bar code** on either side of the Thor VM3 to connect the following scanners:

- Intermec SF51 Bluetooth scanner
- Intermec SF61 Bluetooth scanner
- Intermec SR61 Bluetooth scanner

Using Quick Connect with On Screen Bar Code

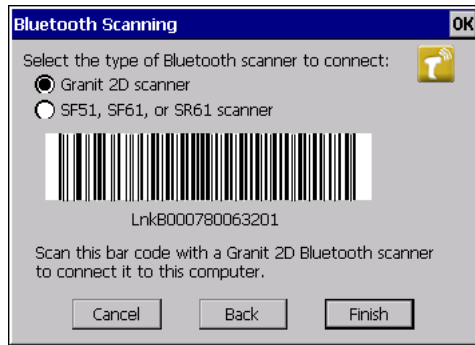
1. Select **Bluetooth Scanning** from the Control Panel (either large or small icon view option must be selected).
2. Tap **Add Device**.
3. Select **Quick Connect**.
4. Tap **Next**.

5. Select the type of scanner to add:

Note: The bar codes below are samples. Do not scan these to connect a Bluetooth scanner. Scan the bar code on your device

Note: If this choice is not presented, the on-screen bar code displayed is only valid for SF51, SF61 or SR61 bar code scanners.

Select Granit 2D scanner to display this bar code



Select SF51, SF61 or SR61 scanner to display this bar code



Scan the displayed bar code to connect one of these scanners:

- Honeywell/LXE 8650 family of Bluetooth ring scanners
- Honeywell Granit 1911i Bluetooth scanner
- Honeywell Granit 1981i Bluetooth scanner
- LXE 88x0 family of Bluetooth scanners

Scan the displayed bar code to connect one of these scanners:

- Intermec SF51 Bluetooth scanner
- Intermec SF61 Bluetooth scanner
- Intermec SR61 Bluetooth scanner

Note: Not all bar code scanners can read the bar code from the screen. If this process fails, use the printed label on the device. See [Using Quick Connect with On Screen Bar Code](#).

Search

To search for a Bluetooth scanner:

1. Select **Bluetooth Scanning** from the Control Panel (either large or small icon view option must be selected).
2. Tap **Add Device**.
3. Select **Search**.
4. Tap **Next**.
5. Select the scanner from the devices shown.
6. Tap **Next**.

Manual Connect

1. Select **Bluetooth Scanning** from the Control Panel (either large or small icon view option must be selected).
2. Tap **Add Device**.
3. Select **Manual**.
4. Tap **Next**.
5. Enter the MAC address of the Bluetooth scanner.
6. Tap **Next**.

Troubleshooting

- The Honeywell Xenon 1902 Bluetooth scanner does not work with Quick Connect. It must be connected using the Search or Manual options.
- Make sure the scanner is in the correct mode. Bar codes to set the mode can be found in the manual provided with the Bluetooth scanner.
 - The scanner must be a master device to use the Quick Connect option.
 - The scanner must be a slave device to use the Search or Manual option.
- The Motorola/Symbol LS3578 family of scanners may not support the Quick Connect feature (depending on firmware installed). If Quick Connect does not work, use the other options to connect these scanners.
- If the Honeywell Granit 1911i and Granit 1981i scanners cannot be found with the Search option, scan the **PDA/Mobility Systems Devices** bar code from the scanner manual and search again.
- If the Honeywell Granit 1911i and Granit 1981i scanners cannot connect using the manual option, scan the **PDA/Mobility Systems Devices** bar code from the scanner manual then repeat the manual add process again.
- If the Honeywell Granit 1911i and Granit 1981i scanners are not removed after using the Remove option, the auto-reconnect option is enabled on the Granit scanner (this is the default option). To remove the scanner:
 - Scan the **disable auto-reconnect** bar code from the Granit scanner manual then tap **Remove**, or
 - Scan BT_RMV to unlink and disconnect the scanner the tap **Remove**.
- If a Honeywell/LXE ring scanner is not connecting, scan the **Restore Factory Defaults** bar code in the scanner manual and try connecting again.

Certificates

Start > Settings > Control Panel > Certificates

Manage digital certificates used for secure communication.

Note: *Digital certificates are date sensitive. If the date on the Thor VM3 is incorrect, wireless authentication will fail.*



The Certificates stores tab lists the certificates trusted by the Thor VM3 user.

These values may change based on the type of network security resident in the client, access point or the host system.

Tap the Import button to import a digital certificate file.

Tap the View button to view a highlighted digital certificate.

Note: *Tap the Remove button to remove highlighted certificate files.*

Note: *Tap the ? button and follow the instructions in the Windows Help file when working with trusted authorities and digital certificates.*

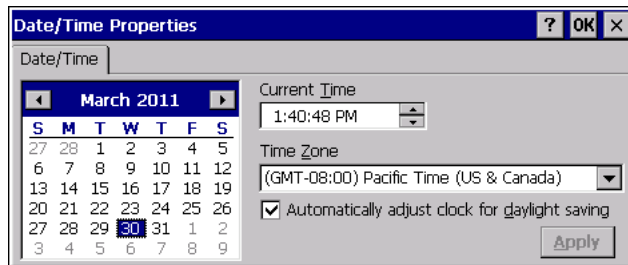
Date / Time

Start > Settings > Control Panel > Date/Time - or - Time in Desktop Taskbar

Use this Thor VM3 panel to set Date, Time, Time Zone, and assign a Daylight Savings location.

Factory Default Settings

Time Zone	GMT-08:00
Daylight Savings	Enabled



There is very little functional change from general desktop or laptop Date/Time Properties options.

Double-tapping the time displayed in the Desktop Taskbar causes the Date/Time Properties screen to appear.

Date and time can be set to automatically synchronize with a time server on the Communications tab of the Options control panel. See [Autolaunch TimeSync](#).

Dialing

Start > Settings > Control Panel > Dialing

Set dialup properties for internal modems (not supplied or supported on the Thor VM3).

Factory Default Settings

Location	Work
Area Code	425
Tone Dialing	Enabled
Country/Region	1
Disable Call Waiting	Disabled (blank)



Display

Start > Settings > Control Panel > Display

The display might also called the touch screen.

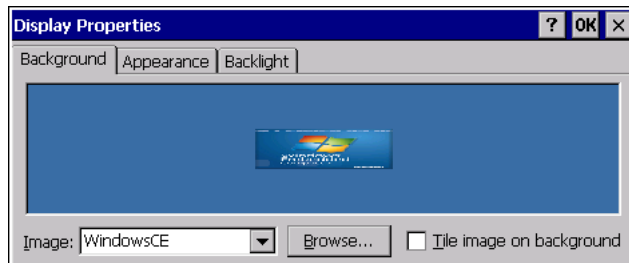
Select the desktop background image and appearance scheme for the Thor VM3. Using the options on the Backlight tab, set the display backlight and keypad backlight timers when running on battery or external power.

Adjust the settings and tap the OK button to save the changes. Saved changes take effect immediately.

Factory Default Settings

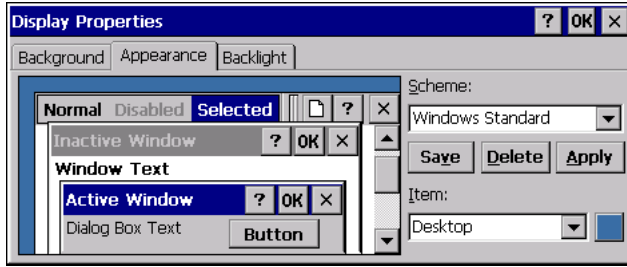
Background	
Image	Windows CE
Tile image on background	Disabled
Appearance	
Schemes	Windows Standard
Backlight	
Battery power	30 seconds
External power	Varies by Power Configuration Mode selected

Background



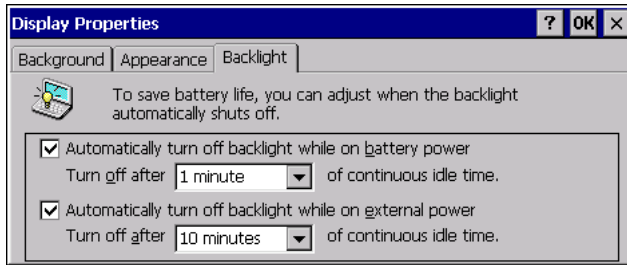
There is very little change from general desktop PC Display Properties / Background options. Select an image from the dropdown list (or tap the Browse button to select an image from another folder) to display on the Desktop, and then tap the OK button to save the change. The change takes effect immediately.

Appearance



There is very little change from general desktop PC Appearance options. Select a scheme from the dropdown list and make changes to the parameters. The default is High Contrast White for monochrome displays and Windows Standard for color displays. Tap the Save button to save any changes, renaming the scheme if desired. Tap the Delete button to delete schemes. Tap the Apply button to apply the selected scheme to the display.

Backlight

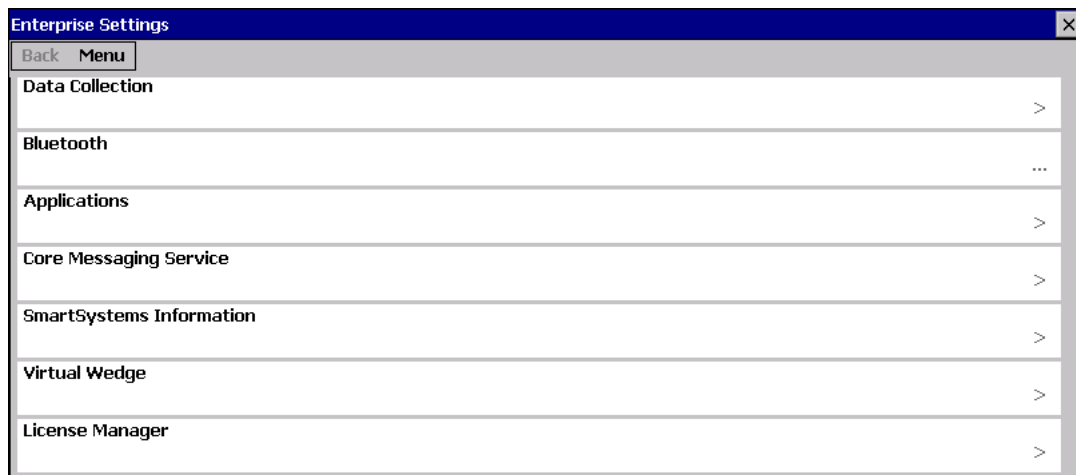


When the backlight timer expires, the touch screen backlight is dimmed, not turned off. When both checkboxes are unchecked, the backlight never turns off (or dims).

The default value for external power varies by the scheme selected on the [Power](#) control panel (and for Ignition Control, the status of the vehicle ignition). The default value is 1 minute when operating on the internal UPS battery.

Enterprise Settings

Start > Settings > Control Panel > Enterprise Settings



Use Enterprise Settings to configure parameters for Enterprise applications on the computer. You can configure parameters for important functions like data collection and communications.

External bar code scanners are supported by connecting the scanner to a COM port, USB port, or by Bluetooth. The scanners parameters, including bar code symbologies, can be configured using Enterprise Settings > Data Collection.

About the Structure of Enterprise Settings

Use the tables below to help find the parameters in Enterprise Settings that you want to configure. Each table contains the parameters for one of the Enterprise Settings Main Menu options.

If you see > next to a menu option, there are more screens available in the next level. If you see ... next to a menu option, there is only one more screen available.

Most parameters are saved as soon as you tap OK. Some settings require you to reboot the computer for the changes to take effect.

Data Collection	Parameters
<i>Tethered Scanners</i>	
Tethered/USB-Configure on Connect	Auto-configure on connect: <ul style="list-style-type: none">• Overwrite with computer settings (default)• Keep scanner settings
Tethered Scanner (COM1)	<ul style="list-style-type: none">• Enable scanner port (On by default, see note below)• Symbologies• Symbology Options• Scanner Settings• Scanner port Settings• Decode Security

Data Collection	Parameters
Tethered Scanner (COM2)	<ul style="list-style-type: none"> • Enable scanner port (On by default, see note below) • Symbologies • Symbology Options • Scanner Settings • Scanner port Settings • Decode Security
Note: By default, COM1 and COM2 are enabled as scanner ports. To use the COM port for another use (such as screen blanking), set the Enable Scanner Port to Off for the desired port.	
Bluetooth Scanners	
BT-Configure on Connect	Auto-configure on connect: <ul style="list-style-type: none"> • Overwrite with computer settings • Keep scanner settings

Bluetooth	Parameters
Power	<ul style="list-style-type: none"> • Off • On (default)
Discoverable	<ul style="list-style-type: none"> • Disable (default) • Enable
Connectable	<ul style="list-style-type: none"> • Disable • Enable (default)
Class of Device	Hardware information (no user entry)
IBT	Hardware information (no user entry)
Radio	Hardware information (no user entry)
Device Address	Hardware information (no user entry)

Printers	Parameters
Information	Printer Configlet Version
Memory	The settings that appear in these menus depend on the printer paired with the Thor VM3. The printer must be using the Bluetooth Printing application.
Display	
Print Engine	
Media	
Print Defs	
Freed Adj	
Power	
Bluetooth Communication	

Applications	Parameters
Launcher	<ul style="list-style-type: none"> • Program Version • Application Launch Buttons <ul style="list-style-type: none"> • Caption text Color • Application Button 1 - 21 • Background Image • Single Application Auto Start • Default Password • Keypad Options • Advanced Options
Enterprise Terminal Emulation	Enterprise Terminal Emulation Configuration Options
Auto Start	Auto Start Options <ul style="list-style-type: none"> • None (default) • Launcher • Enterprise Browser • Enterprise Terminal Emulation • HTML5 Browser
Enterprise Browser	Program Version Browser Engine General Menu Options Security Privacy Appearance Menu and Toolbar Actions
HTML5 Browser	Program Version General Security Privacy Appearance

Core Messaging Service	Parameters
Server IP	Server IP (read-only)
Broadcast Name	Broadcast Name
Port	Port (read-only)
Keep Alive Ping Interval	Keep alive ping interval

SmartSystem information	Parameters
Identity	Identity information (hardware version, firmware version, OS version, etc.) (read-only)
Administrator	Administrator settings (name, phone, and email)
Location	Location settings (country, state, city, campus, and detail)
Information	Device Notes (read-only)

Device Manager	Parameters
Device Health Controls	<ul style="list-style-type: none"> • Enable Data Health Collection • Enable Blue Light (LED) • Set Rule File Location • Set Data Refresh periods
Disabled Executables	Disabled Executables Template
Device Wipe	<ul style="list-style-type: none"> • Enable Wipe • Interval (in days)

Virtual Wedge	Parameters
Enable Virtual Wedge	Enable virtual wedge
Virtual Wedge Method	<ul style="list-style-type: none"> • Adapt to Application (default) • Character mode • Block mode
Barcode Scanner Wedge	<ul style="list-style-type: none"> • Barcode Scanner Grid • Label Encoding (Code Page)

Applications	Parameters
Launcher	<ul style="list-style-type: none"> • Program Version • Application Launch Buttons <ul style="list-style-type: none"> • Caption text Color • Application Button 1 - 21 • Background Image • Single Application Auto Start • Default Password • Keypad Options • Advanced Options
Enterprise Terminal Emulation	Enterprise Terminal Emulation Configuration Options
Auto Start	Auto Start Options <ul style="list-style-type: none"> • None (default) • Launcher • Enterprise Browser • Enterprise Terminal Emulation • HTML5 Browser
Enterprise Browser	Program Version Browser Engine General Menu Options Security Privacy Appearance Menu and Toolbar Actions
HTML5 Browser	Program Version General Security Privacy Appearance

License Manager	Parameters
About	Information on License Vault
License Vault	None (displays applications that are licensed)

Bar Code Scanners and Enterprise Settings

The following types of bar code scanners are supported on the Thor VM3:

- A tethered scanner connected to COM1 or COM2
- A wireless scanner connected via Bluetooth

Note: *USB scanners are not supported by or configured through Enterprise Settings. See [USB Scanners](#).*

The scanner symbologies can be updated through Enterprise data collection software.

Serial Scanners

To configure a particular scanner to work with Enterprise data collection software, select Start > Control Panel > Enterprise Settings > Data Collection > Tethered Scanner > Tethered Scanner (COM1) or (COM2) > Scanner Settings.

Select the appropriate scanner model (SR Intermec Scanner, ASCII, SR60). By default, both COM1 and COM2 are opened so the appropriate scanners (see below) can work without changing factory defaults:

Tethered Scanner (COM1)

By default the Scanner Model is set to SR Intermec Scanner, which covers models such as SR61T, SR30, and SR31.

Tethered Scanner (COM2)

By default the Scanner Model is set to ASCII to connect with a scanner with baud rate of 9600, 8 data bits, no parity, 1 stopbit, and no flow control.

Bluetooth Scanners

See [Bluetooth Scanning](#) for information on connecting Bluetooth scanners.

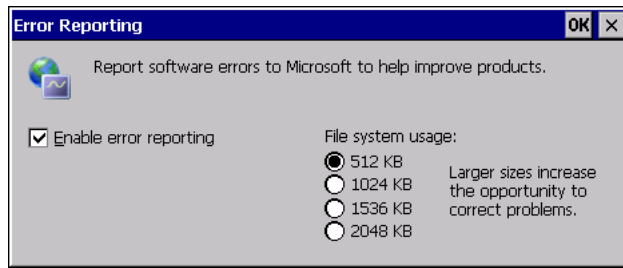
Always use Enterprise Settings to configure Bluetooth parameters. Do not use the Bluetooth configuration options available from the Bluetooth icon in the system tray.

USB Scanners

When a HID enabled USB scanner is connected to the Thor VM3 the scanned data is transmitted to the active windows as keystroke messages. Any data handling to be applied to the scanned data (for example to strip leading or trailing characters) must be programmed into the scan engine. This is done by scanning configuration bar codes from the scanner manufacturer or handled by the application accepting the data. Note that Enterprise Settings data collection does not support USB Scanners.

Error Reporting

Start > Settings > Control Panel > Error Reporting



By default, error reporting is enabled (requires Internet connection).

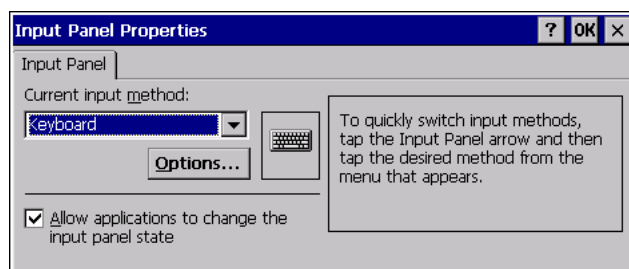
Input Panel

Start > Settings > Control Panel > Input Panel

Set the current Thor VM3 keys and data input method.

Factory Default Settings

Input Panel	
Input Method	Keyboard
Allow applications to change input panel state	Enabled
Options button	
Keys	Small keys
Use gestures	Disabled



Use this panel to make the Input Panel (on-screen keyboard) or the physical keypad primarily available when entering data on any screen. Selecting Keyboard enables both.

Tap the Options button to set the size of the keys displayed on-screen and whether gestures are enabled or disabled.

Internet Options

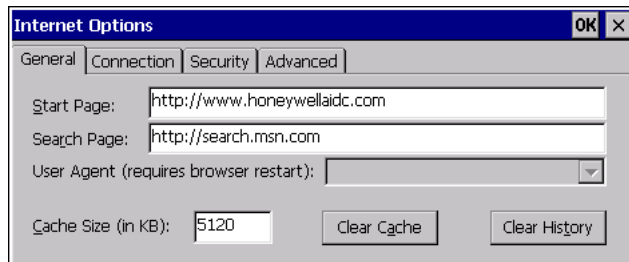
Start > Settings > Control Panel > Internet Options

Set options for Thor VM3 Internet connectivity.

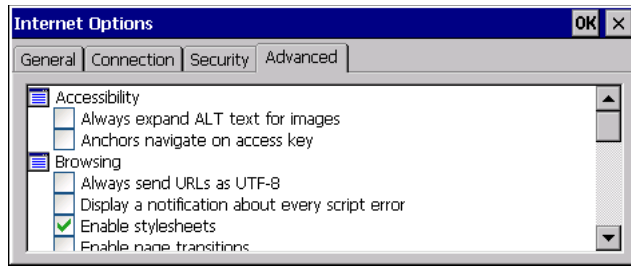
Select a tab. Adjust the settings and tap the OK button. The changes take effect immediately.

Factory Default Settings

General	
Start Page	http://www.honeywell.com
Search Page	http://search.msn.com
User Agent	N/A
Cache Size	5120 KB
Connection	
Use LAN	Disabled
Autodial Name	None
Proxy Server	Disabled
Bypass Proxy	Disabled
Security	
Internet	Default site
Advanced	
Stylesheets	Enabled
Theming Support	Enable
Multimedia	All options enabled
Security	All options enabled



Security Tab: Use the Settings button to set ActiveX control, scripting and plug-in behavior for each zone (Internet, Local Intranet, Trusted Sites, Restricted Sites). Use the Site button to add sites to each zone.



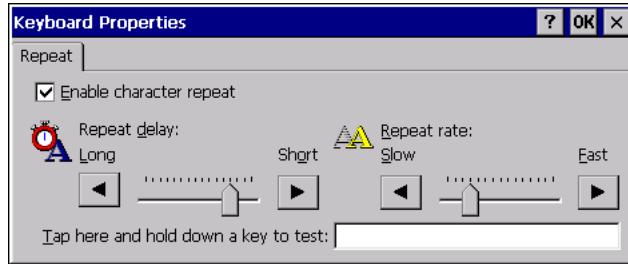
Keyboard

Start > Settings > Control Panel > Keyboard

Set keypad key map, keypad key repeat delay, and key repeat rate.

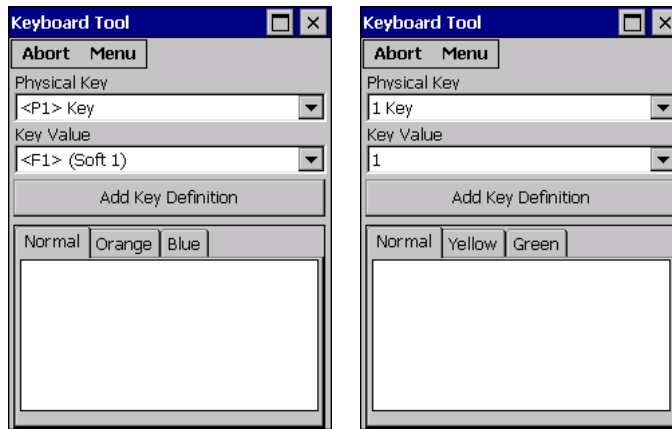
Factory Default Settings

Repeat character	Enable
Repeat Delay	Short
Repeat Rate	Slow



Keyboard Remapper

Start > Settings > Control Panel > Keyboard Remapper



Keyboard Remapper for integrated Programmable Keys

Keyboard Remapper for 21-key Numeric Keyboard

Keyboard Remapper is designed to remap keys on the integrated keypad (P1 through P7) or keys on an attached USB keyboard (such as the Honeywell 21-key numeric keyboard).



If programming both the integrated programmable keys and keys on a USB keyboard, follow the process below.

1. If a USB keyboard has already been attached, remove the USB keyboard to program the integrated keys.
2. Start the remapping utility.
3. Program the integrated programmable keys (i.e.: P1 - P7) on the Thor VM3.
4. Exit the remapping utility.
5. Attach the USB keyboard.
6. Restart the remapping utility.
7. Remap any keys desired on the USB keyboard.

If any modifications need to be made to the P1 - P7 keys at a later time, it is necessary to remove any USB keyboard to edit these keys in the remapping utility.

To remap a key:

1. Select the desired key to remap from the Physical Key pull-down list.
2. Select the desired modifier key, for example:
 - Normal (no modifier), Orange or Blue for the integrated programmable keys (P1-P7)
 - Normal (no modifier), Yellow or Green for the 21-key numeric keyboard.
3. Select the desired value for the remapped key from the Key Value pull-down list.

4. Tap Add Key Definition.
5. The value for the remapped key shows in the box below.
6. To return any key to the default value, select Key Default Value from the Key Value list.
7. Changes are saved when the remapping utility is exited.

Abort

Tap the Abort button to exit without saving changes.

Menu

The following options are available.

About

Displays information about the keyboard remapper utility.

Import Keymap

Use this option to import a keymap file.

1. Tap Menu > Import Keymap.
2. Enter the file name to import. If no location is specified, the default is to look in the root of the drive. Otherwise enter the path and file name.
3. Tap Import to import the keymap or Abort to cancel without importing.
4. If the import is not successful (i.e.: an incorrect file name or location was specified) an error message is displayed. Otherwise the keymap has been imported.

Export Keymap

Use this option to export a keymap file.

1. Tap Menu > Export Keymap.
2. Enter the file name to export. If no location is specified, the default is to export to the root of the drive. Otherwise enter the path and file name.
3. Tap Export to import the keymap or Abort to cancel without exporting.
4. If there are unsaved changes in the keymap, a message is displayed:
 - Tap OK to save the changes and export the keymap file.
 - Tap cancel (X) to the keymap to a file without any unsaved changes included.
5. If the import is not successful (i.e.: an invalid file name or location was specified) an error message is displayed. Otherwise the keymap has been exported.

Restore Defaults

Tap Restore Defaults to apply the default values for all keys.

If more than one keyboard was remapped, this function only applies to the current keyboard in the remapping utility. For example, if the integrated programmable keys on the Thor VM3 were remapped then a USB keyboard was attached only they remapped keys on the USB keyboard would be reset to default values. Remove the USB keyboard and relaunch the remapper utility to restore defaults to the integrated programmable keys.

Remap a Key to Launch an Application

In order to use Keyboard Remapper to launch an application it is necessary to edit the Windows registry. Follow the process below. In this example, Orange P1 (P8) is remapped to the command prompt.

1. Launch the registry editor. See [REGEDIT.EXE](#).

2. Locate the following key in the registry:

HKEY_LOCAL_MACHINE\Software\Microsoft\Shell\Keys

3. There are entries for each of the currently defined key values. These values are C1 through C6, representing VK_APP_LAUNCH1 through VK_APP_LAUNCH6. All six values may not be associated with a keypress and therefore not currently defined in the registry.

4. Add a key for the application launch VKEY you are adding. In this example, assuming C4 is not used, add a C4 subkey to the keys under:

HKEY_LOCAL_MACHINE\Software\Microsoft\Shell\Keys.

5. Add the values for the C4 key that was created. In this example, cmd.exe (command prompt) is added:

Name	Format	Description	Example
Application	"appname.exe"	The name of the application	"cmd.exe"
Path	"\Windows"	The path of the application	"\Windows"

6. Launch the [Keyboard Remapper](#).

7. Select the desired key to remap. In this example select Orange P1 for Physical Key.

8. Add the desired action. In this example, select App 4 for Key Value.

9. Click the Add Key Definition button.

10. Exit the Keyboard Remapper.

11. Pressing Orange + P1 opens a command prompt window.

Mixer

Start > Settings > Control Panel > Mixer

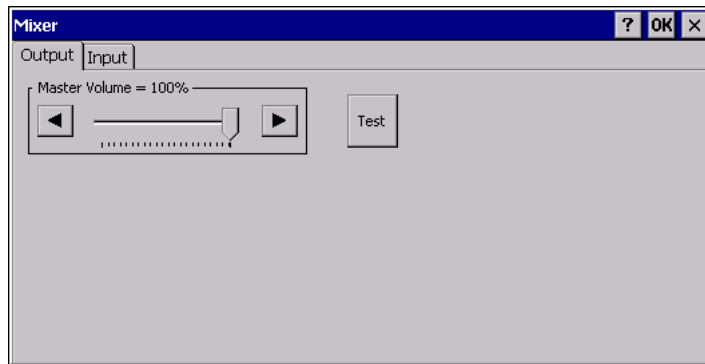
The Thor VM3 has two speakers (located at the bottom front of the unit) and one microphone (located at the top front of the unit).

Use the settings on these panels to adjust the master volume, record gain and sidetone.

Factory Default Settings

Output	
Master Volume	- dB
Input	
Record Gain	0.0 dB
Sidetone	Disabled

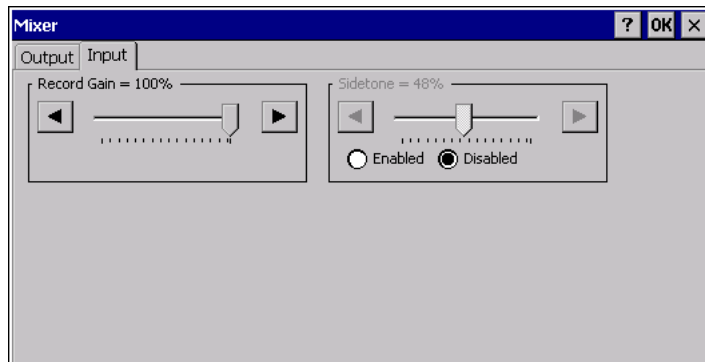
Output Panel



Tap and hold the Master Volume slider and move either left or right, or tap the left and right arrows, to adjust Speaker volume decibel level.

Tap the Test button to play a sample sound at the selected volume.

Input Panel



By default the side tone is muted. If needed, the user should enable the side tone. If this causes interfering noise, the side tone should be disabled. The VM3 audio is designed to be used with or without the side tone. This is acceptable permissible performance for the Thor VM3.

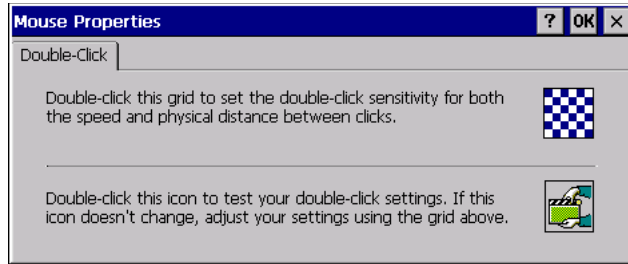
Use the radio buttons to enable or disable the sidetone.

Tap and hold the Record Gain or Sidetone sliders and move either left or right, or tap the left and right arrows, to adjust the levels.

Mouse

Start > Settings > Control Panel > Mouse

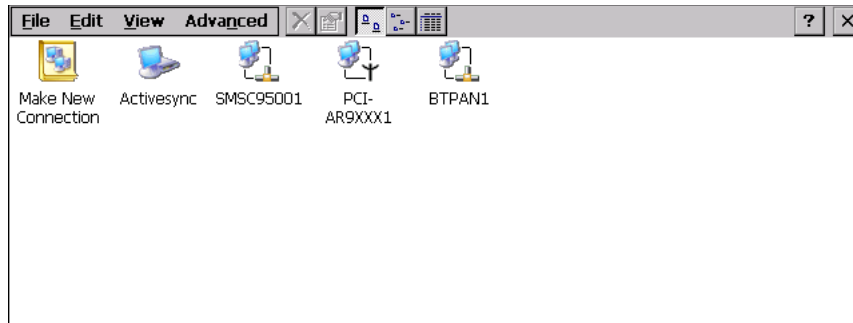
Use this option to set the double-tap sensitivity for stylus taps on the Thor VM3 touch screen.



Network and Dialup Connections

Start > Settings > Control Panel > Network and Dialup Connections

Set Thor VM3 network driver properties and network access properties. Select a connection to use, or create a new connection.



Create a New Connection

1. On the mobile device, select Start > Settings > Control Panel > Network and Dialup Connections. A window is displayed showing the existing connections.
2. Assuming the connection you want does not exist, double-tap Make New Connection.
3. Give the new connection an appropriate name (My Connection @ 9600, etc.). Tap the Direct Connection radio button. Tap the Next button.
4. From the popup menu, choose the port you want to connect to. Only the available ports are shown.
5. Tap the Configure... button.
6. Under the Port Settings tab, choose the appropriate baud rate. Data bits, parity, and stop bits remain at 8, none, and 1, respectively.
7. Under the Call Options tab, be sure to turn off Wait for dial tone, since a direct connection will not have a dial tone. Set the timeout parameter (default is 5 seconds). Tap OK.
8. TCP/IP Settings should not need to change from defaults. Tap the Finish button to create the new connection.
9. Close the Remote Networking window.
10. To activate the new connection select Start > Settings > Control Panel > PC Connection and tap the Change Connection... button.
11. Select the new connection. Tap OK twice.
12. Close the Control Panel window.
13. Connect the desktop PC to the mobile device with the appropriate cable.
14. Click the desktop Connect icon to test the new connection.

You can activate the connection by double-tapping on the specific connection icon in the Remote Networking window, but this will only start an RAS (Remote Access Services) session, and does not start ActiveSync properly.

Network Capture

Start > Settings > Control Panel > Network Capture

Note: Verify the [Date / Time](#) before using the logging utilities to ensure meaningful data.

The Network Capture panels provide configuration options for logging utilities. Two types of logging are configurable:

- Netlog is a Windows utility that monitors network traffic. Netlog creates a .CAP file that can be read using Microsoft Windows Network Monitor or any compatible tool that supports .CAP files.
- NDISLog monitors the NDIS interface between the WLAN radio and the NDIS driver. This utility creates a .TXT log file.

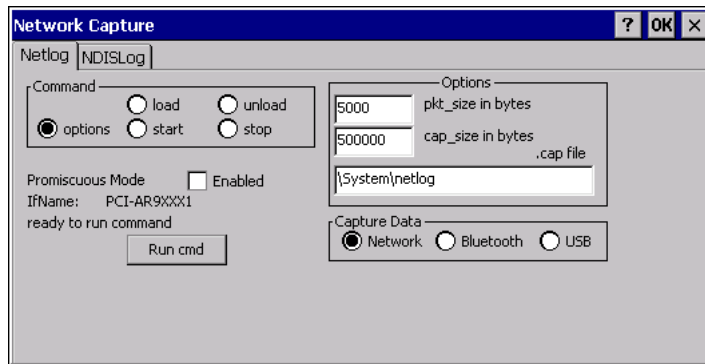
Factory Default Settings

Netlog	
Command	options
pkt_size in bytes	5000
cap_size in bytes	500000
.cap file	\netlog
Promiscuous Mode	Disabled
NDISLog	
Command	stop
file	\ndislog.txt

Netlog

Use this control panel to configure the Netlog utility. By configuring Netlog using the control panel, Netlog remains running across a warmboot. However, please note that:

- Netlog first stores data to a file named netlog0.cap, then netlog1.cap. Any time the current file reaches maximum size, Netlog switches to the other file.
- If the log file is stored in the root directory, any previous data is lost and a new log file started after the warmboot
- If the log file is stored in \System, all previous data is saved across the warmboot.
- If Netlog is enabled across the warmboot, a series of brief popups may be displayed during the boot cycle. No user interaction is required.



Command

Command	Function
options	Specifies the option to perform. See the table below for the option parameters and values.
load	Loads and starts Netlog.
start	Starts the Netlog process of logging the network traffic.
stop	Stops Netlog from logging network traffic.
unload	Unloads Netlog.

Options

Options	Function
pkt_size in bytes	Specifies the maximum packet size captured in bytes. This option should only be run after you have called load and stop . Default is 5000.
cap_size in bytes	Specifies the maximum size of Netlog0.cap or Netlog1.cap in bytes. This option should only be run after you have called load and stop . Default is 500,000.
.cap file	Specifies the name of the file to which network traffic information is saved. This option should only be run after you have called load and stop . Default is \netlog.

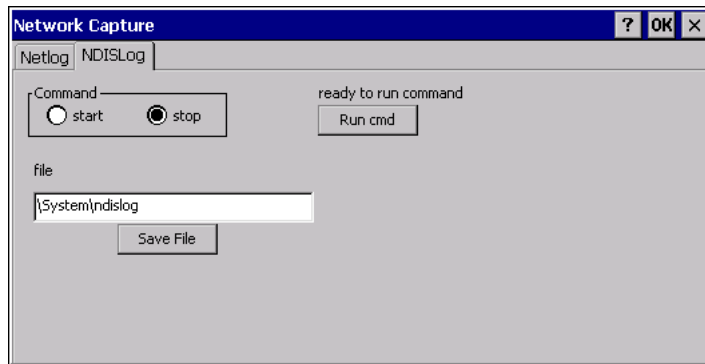
Run cmd

Performs the command selected. For example, to run Netlog and modify the packet size do the following:

1. Select load from the Commands list and click the Run cmd button.
2. Select stop from the Commands list and click the Run cmd button.
3. Select options from the Commands list, enter the new packet size in the Options list and click the Run cmd button.

NDISLog

NDISLog creates a .TXT file that can be viewed with any text editor program that supports .TXT files.



Command

Command	Function
start	Starts logging the network traffic.
stop	Stops logging network traffic.

file

Specifies the name of the file to which NDISLog information is stored.

Save File

Stores the file name.

Run cmd

Performs the selected start or stop command.

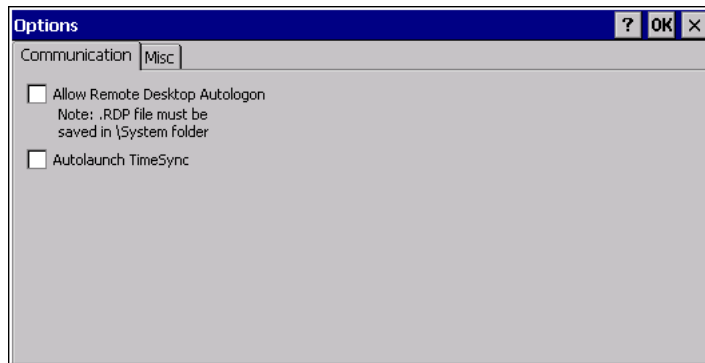
Options

Start > Settings > Control Panel > Options

It may be necessary to warmboot the Thor VM3 after making desired changes. A pop up window indicates if a warmboot is required.

Communication

Options on this tab configure communication options for the Thor VM3.



Allow Remote Desktop Autologon

By default, Remote Desktop Autologon is disabled. Check this checkbox to enable Remote Desktop Autologon.

Note: The .RDP file must be saved in the \System folder. When prompted, use the Save As button to save the .RDP file in the \System directory. If the .RDP file is saved in the default root folder location, the .RDP file will not persist across a warmboot.

Autolaunch TimeSync

By default, TimeSync does not automatically run on the Thor VM3. To enable TimeSync to run automatically on the Thor VM3, check this checkbox.

Synchronize with a Local Time Server

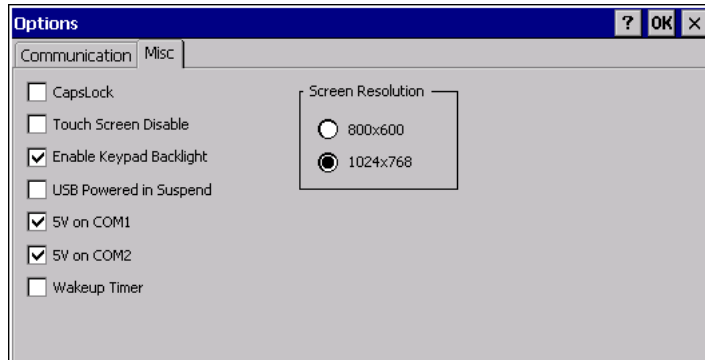
By default, GrabTime synchronizes via an Internet connection. To synchronize with a local time server:

1. Use ActiveSync (or a USB thumb drive) to copy GrabTime.ini from the My Device > Windows folder on the mobile device to the host PC.
2. Edit the copy of GrabTime.ini on the host PC. Add the local time server's domain name to the beginning of the list of servers. You can optionally delete the remainder of the list.
3. Copy the modified GrabTime.ini file to the My Device > System folder on the mobile device.

The System/GrabTime.ini file takes precedence over the Windows/GrabTime.ini file. System/Grabtime.ini also persists after a coldboot; Windows/Grabtime.ini does not persist.

Misc

Options on this tab configure device specific options. Note that options not available on the Thor VM3 are dimmed or grayed out.



CapsLock

By default, CapsLock is off after a warmboot. Check this box to turn CapsLock on after a warmboot.

Touch Screen Disable

By default, the Thor VM3 touch screen is enabled. To disable the touch screen after a warmboot, click this checkbox.

Note: *If the touch screen is disabled on a Thor VM3, you must use a USB mouse or keyboard attached to the Thor VM3 to access this tab to re-enable the touch screen unless a key has been assigned to enable the touch screen using [Keyboard Remapper](#).*

Enable Keypad Backlight

By default, the keypad backlight default setting is to follow the display backlight setting until it is changed by the user.

Click the checkbox to disable the keypad backlight.

This keypad backlight setting only applies to the integrated keypad on the Thor VM3. The keyboard backlight on an attached USB keyboard is not affected by this setting.

USB Powered in Suspend

By default, power to attached USB devices is turned off when the Thor VM3 is in Suspend mode. Check this box to maintain power to attached USB devices in Suspend.

The external keyboard is a USB device. If USB devices are not powered in Suspend the external keyboard backlight turns off when the Thor VM3 enters Suspend.

5V on COM1

By default, Pin 9 of COM1 provides +5V, such as for an external scanner tethered to the COM1 port. Uncheck this box to configure Pin 9 of COM1 to provide RI.

5V on COM2

By default, Pin 9 of COM2 provides +5V, such as for an external scanner tethered to the COM2 port. Uncheck this box to configure Pin 9 of COM2 to provide RI.

Wakeup Timer

The default the value for the wakeup timer varies by operating system revision level. Check this box to enable it.

It is recommended that the Wakeup Timer be enabled.

Screen Resolution

By default screen resolution is set to 1024x768. A restart is required to change resolution.

Owner

Start > Settings > Control Panel > Owner

Set the Thor VM3 owner details. The Network ID is used when logging into a remote network.

Factory Default Settings

Identification	
Name	Blank
Company	Blank
Address	Blank
Telephones	Blank
Display owner ID at power-on	Disabled
Notes	
Notes	Blank
Display notes at power-on	Disabled
Network ID	
User Name	Blank
Password	Blank
Domain	Blank

The screenshot shows the 'Owner Properties' dialog box with the 'Identification' tab selected. It contains several input fields: 'Name', 'Company', and 'Address'. To the right, there is an 'At Power On' section with a checkbox for 'Display owner identification'. Below this, there are fields for 'Area code' and 'Phone', and 'Work' and 'Home' phone numbers.

The screenshot shows the 'Owner Properties' dialog box with the 'Notes' tab selected. It features a large text area for 'Notes' and a checkbox for 'Display owner notes at power on'. A help text box on the right states: 'Use the Notes field to add any additional information not included in the Identification tab.'

The screenshot shows the 'Owner Properties' dialog box with the 'Network ID' tab selected. It includes a text box with instructions: 'Windows CE uses this information to gain access to network resources. Enter the user name, password, and domain provided by your network administrator.' To the right, there are input fields for 'User name', 'Password', and 'Domain'.

Enter user name, password and domain to be used when logging into network resources.

Password

Start > Settings > Control Panel > Password

Important: This password must be entered before performing a Load Factory Defaults.

If entering a power-on or screen saver password does not allow you to disable this password protection or perform a Load Factory Defaults, contact [Technical Assistance](#).

Factory Default Settings

Prompt if device unused for	Disabled
Timeout	0 minutes
Password	Blank

Password



- The password and password settings are saved during a restart.
- After a password is assigned and saved, each time a Settings > Control Panel option is selected, the user will be required to enter the password before the Control Panel will open.

Check the box to enable the password, enter a timeout and select a password type.

Enter the password in the Password text box, then press Tab and type the password again to confirm it.

A changed/saved password is in effect immediately.

Hint



Use this screen to enter a hint in case the password is forgotten.

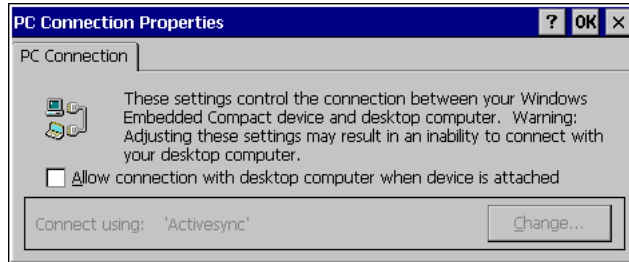
PC Connection

Start > Settings > Control Panel > PC Connection

Use these options to control a cabled connection (USB, serial) between the Thor VM3 and a nearby desktop/laptop computer.

Factory Default Settings

Enable direct connection	Disabled
Connect using	ActiveSync



Tap the Change button to change the direct connect setting.

Tap the drop-down box to view a list of preconfigured connection settings.

The Thor VM3 does not support a USB client connection. ActiveSync is only available via serial connection.

In order to use a serial port for ActiveSync, the port must be disabled in [Enterprise Settings](#) and pin 9 must be set to RI in [Options](#).

Peripherals

Start > Settings > Control Panel > Peripherals

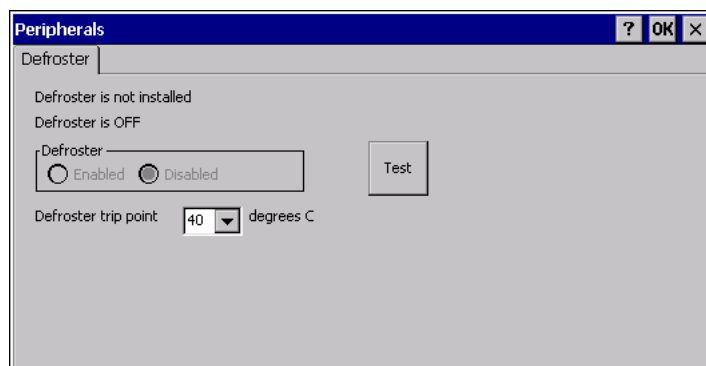
This panel is used to enable and disable the touch screen defroster.

Factory Default Settings

Defroster	
Defroster	Enabled (if installed)
Defroster Trip Point	40° C (104° F)

Defroster

Note: Settings have no effect if the defroster is not installed.



The screen displays the information about the defroster:

- If the defroster is installed
- The current state of the defroster, ON or OFF
- If the defroster is Enabled or Disabled
- The defroster trip point.

Tap the Test button to determine the presence of the defroster. Use this button when the front panel of the Thor VM3 has been swapped. For example, if the Thor VM3 did not contain a defroster but a new front panel with a defroster is installed, tap the Test button to update the defroster presence status on this tab.

If a defroster is installed, the defroster can be switched between the Enabled and Disabled states using the radio buttons on this tab. The default is Enabled.

Specify the Defroster trip point. The default trip point is 40° C (104° F).

Power

Start > Settings > Control Panel > Power

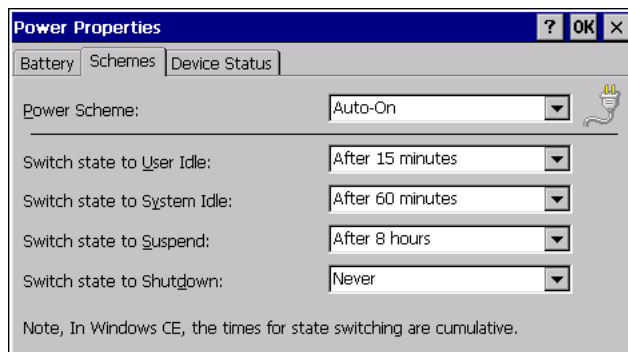
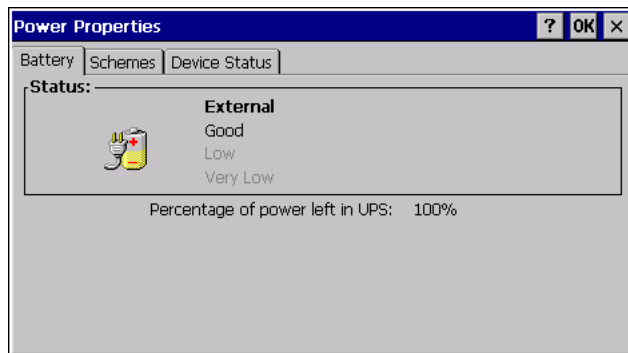
The Thor VM3 power mode timers are cumulative.

The System Idle timer begins the countdown after the User Idle timer has expired and the Suspend timer begins the countdown after the System Idle timer has expired.

When the User Idle timer is set to “Never”, the power scheme timers never place the device in User Idle, System Idle or Suspend modes (even when the device is idle).

The Display > Backlight setting is synchronized with the User Idle setting in the Schemes tab in the Power control panel.

Factory Default Settings



The default Power Scheme selected for the Thor VM3 depends on:

- if external power is connected to the Thor VM3,
- and, for ignition control, the status of the vehicle ignition signal.

The Power Schemes are defined below. The active Power Scheme depends on the user-selected power configuration mode. However, if no external power is present, the Thor VM3 uses the UPS Power Scheme regardless of user selected Power Configuration mode.

- AC/DC - When AC/DC has been selected for the Power Configuration mode, this Power Scheme is selected. Because of the presence of external power, this Power Scheme has longer timeout values.

- Ignition Control/Ignition On - When either Ignition Control option has been selected for the Power Configuration mode and the Ignition Switch is On, this Power Scheme is selected. Because of the presence of external power, this Power Scheme has longer timeout values.
- Ignition Control/Ignition Off - When either Ignition Control option has been selected for the Power Configuration mode and the Ignition Switch is Off, this Power Scheme is selected. This Power Scheme has shorter timeout values (compared to Ignition On) to preserve the vehicle battery.
- Auto-On - When Auto-On has been selected for the Power Configuration mode, this Power Scheme is selected. Because of the presence of external power, this Power Scheme has longer timeout values.
- UPS - When any Power Configuration Mode is selected but no external power is present, the UPS Power Scheme is used. This Power Scheme has much shorter timeout values designed to shut down the Thor VM3 before the UPS battery is depleted.

Because of the cumulative effect, if the Thor VM3 is operating from the UPS, for example:

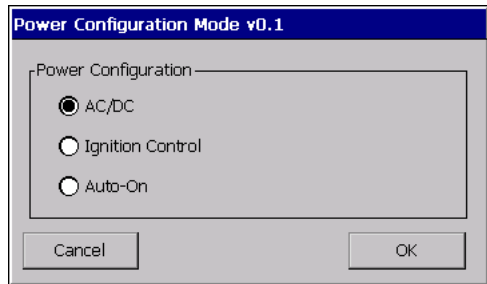
- The backlight turns off after 30 seconds of no activity,
- The display turns off after 1 minute and 30 seconds of no activity (30 sec + 1 min),
- The Thor VM3 enters Suspend after 11 minutes and 30 seconds of no activity.
- The Thor VM3 shuts down after 31 minutes and 30 seconds of no activity.
- If the User Idle timer is set to Never, the power scheme timers never place the Thor VM3 in User Idle, System Idle or Suspend modes.

Power Configuration Mode

Start > Settings > Control Panel > Power Configuration Mode

There are three user selectable power configuration modes for the Thor VM3 available. Additionally a UPS power configuration mode is supported and automatically selected regardless of the user selected mode any time external power is not present.

Power control panel timeout values vary by the power configuration mode selected.



AC/DC Mode

This is the default power mode. In AC/DC mode the Thor VM3 is turned On when power is connected. Ignition input is ignored when AC/DC Mode is enabled.

Note: When the UPS battery has been depleted or disconnected (the Thor VM3 is first powered out of the box, the front panel has been replaced, etc.) power the Thor VM3 manually by pressing the power button. After the initial power up, the Thor VM3 powers on automatically when power is attached and AC/DC mode is selected.

Note: When AC/DC is used to power the Thor VM3 on automatically the [Wakeup Timer](#) must be enabled.

Thor VM3 is Off Conditions

The Thor VM3 is Off and gets external power, such as

- Thor VM3 is installed on a powered dock with the dock power switch On
- Thor VM3 is already mounted to a dock and external power is applied to the dock
- Thor VM3 is already mounted to a dock and the dock power switch is turned On

Result

The Thor VM3 boots. Once booted the Thor VM3 follows the AC/DC power scheme with timers reset after the boot completes.

Thor VM3 is On Conditions

The Thor VM3 is On and gets external power, such as

- Thor VM3 is installed on a powered dock with the dock power switch On

- Thor VM3 is already mounted to a dock and external power is applied to the dock
- Thor VM3 is already mounted to a dock and the dock power switch is turned On

Result

The Thor VM3 continues to run and follows the AC/DC power scheme with timers reset at the time power was connected.

Ignition Control Mode

In Ignition mode, the Thor VM3 is turned On when the ignition switch is activated with no user interaction required. The ignition input wire must be connected.

Note: *When the UPS battery has been depleted or disconnected (the Thor VM3 is first powered out of the box, the front panel has been replaced, etc.) power the Thor VM3 manually by pressing the power button. After the initial power up, the Thor VM3 powers on automatically when the Ignition Control Mode is enabled and the ignition is turned on.*

Note: *When ignition control is used to power the Thor VM3 on automatically the [Wakeup Timer](#) must be enabled.*

Thor VM3 is Off and Vehicle Ignition is Off

Conditions

The Thor VM3 is Off and vehicle ignition is Off.

Result

The Thor VM3 remains Off regardless of external power. UPS charging is disabled.

Conditions

The Thor VM3 has external power but vehicle ignition is Off. The Power button is pressed.

Result

The Thor VM3 boots. Once booted the Thor VM3 follows the Ignition Control/Ignition Off power scheme with timers reset after the boot completes.

Thor VM3 is Off and Vehicle Ignition is Switched to On

Conditions

The Thor VM3 is Off and vehicle ignition changes from Off to On.

Result

The Thor VM3 boots. Once booted the Thor VM3 follows the Ignition Control/Ignition On power scheme with timers reset after the boot completes.

Thor VM3 is On and Vehicle Ignition is Switched to On

Conditions

The Thor VM3 is On and vehicle ignition changes from Off (or not present) to On.

Result

The Thor VM3 continues to run and follows the Ignition Control/Ignition On power scheme with timers reset at the time Ignition switched to Active.

An example of this case would be a Thor VM3 that is running on UPS and is then mounted on a dock that has truck power and the ignition switch is already On.

Thor VM3 is On and Vehicle Ignition is Switched to Off

Conditions

The Thor VM3 is On and vehicle ignition changes from On to Off.

Result

The Thor VM3 follows the Ignition Control/Ignition Off power scheme with timers reset at the time Ignition switched to Inactive. UPS charging is disabled.

An example of this case would be a Thor VM3 that is running on UPS and is then mounted on a dock that has truck power and the ignition switch is already Off.

Auto-On Mode

In Auto-On mode, the Thor VM3 is turned On by the presence of external power with no user interaction required. Ignition input is ignored when Auto-On Mode is enabled.

Note: *When the UPS battery has been depleted or disconnected (the Thor VM3 is first powered out of the box, the front panel has been replaced, etc.) power the Thor VM3 manually by pressing the power button. After the initial power up, the Thor VM3 powers on automatically when power is attached and Auto-On mode is selected.*

Note: *When Auto-On is used to power the Thor VM3 on automatically the [Wakeup Timer](#) must be enabled.*

Thor VM3 is Off

Conditions

The Thor VM3 is Off and gets external power, such as

- Thor VM3 is installed on a powered dock with the dock power switch On
- Thor VM3 is already mounted to a dock and external power is applied to the dock
- Thor VM3 is already mounted to a dock and the dock power switch is turned On

Result

The Thor VM3 boots. Once booted the Thor VM3 follows the Auto-On power scheme with timers reset after the boot completes.

Thor VM3 is On

Conditions

The Thor VM3 is On and gets external power, such as

- Thor VM3 is installed on a powered dock with the dock power switch On

- Thor VM3 is already mounted to a dock and external power is applied to the dock
- Thor VM3 is already mounted to a dock and the dock power switch is turned On

Result

The Thor VM3 continues to run and follows the Auto-On power scheme with timers reset at the time power was connected.

UPS Mode

This mode is selected any time external power is not present, regardless of selected Power Configuration. Ignition Input is ignored.

Thor VM3 is Off Conditions

- The Thor VM3 is Off and the power button is pressed the Thor VM3 and both the following conditions are met:
- UPS power is over 10% capacity
- CPU temperature is over 20°C

Result

The Thor VM3 boots and follows the UPS power scheme with power management timers reset at boot up.

Conditions

The Thor VM3 is Off and the power button is pressed the Thor VM3 and at least one of the following conditions are met:

- UPS power is under 10% capacity
- CPU temperature is under 20°C

Results

The Thor VM3 remains Off.

Thor VM3 is On Conditions

The Thor VM3 is On and external power is removed, such as:

- Thor VM3 is removed from a powered dock (Dock power switch On)
- Thor VM3 is mounted to a dock and truck power is removed from the dock
- Thor VM3 is mounted to a dock and the dock power switch is turned Off

Result

The Thor VM3 continues to run and follows the UPS mode power scheme with power management timers reset at the time of power removal. UPS charging is disabled.

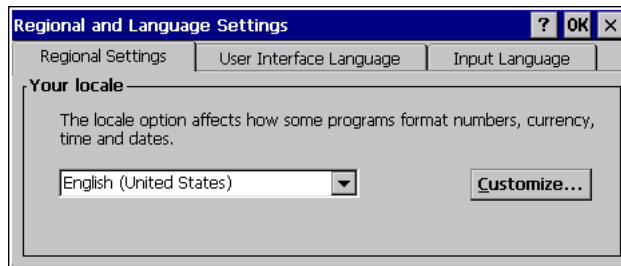
Regional Settings

Start > Settings > Control Panel > Regional Settings

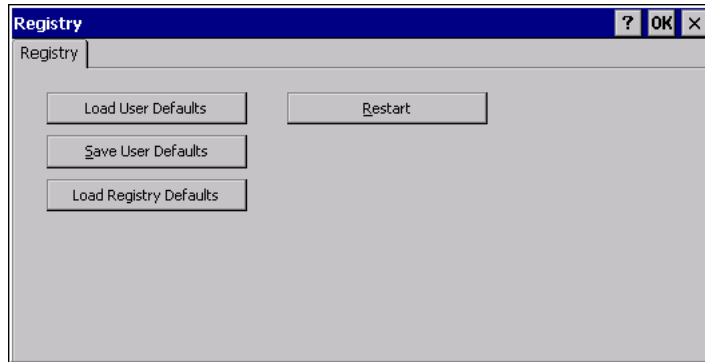
Set the appearance of numbers, currency, time and date based on regional and language settings. Set the Thor VM3 user interface language and the default input language.

Factory Default Settings

Region	
Locale	English (United States)
Number	123,456,789.00 / -123,456,789.00 neg
Currency	\$123,456,789.00 pos / (\$123,456,789.00) neg
Time	h:mm:ss tt (tt=AM or PM)
Date	M/d/yy short / dddd,MMMM,dd,yyyy long
Language	
User Interface	English (United States)
Input	
Language	English (United States)-US
Installed	English (United States)-US



Registry



Start > Settings > Control Panel > Registry

Choose options for managing the registry and rebooting the Thor VM3.

Button	Action
Load User Defaults	When clicked, a standard load file dialog is opened, to allow the user to pick a Registry Save (.RSG) file. The applet then copies the specified User registry file to the Active registry. The user is asked to verify a reboot, and then the applet does a warmboot to activate the new registry. Note: When the Thor VM3 is set to user defaults, a second reboot must be performed to load the WLAN driver. When the Thor VM3 has finished booting, return to the Registry panel and tap Restart,
Save User Defaults	When clicked, a standard Save File dialog is opened, to allow the user to name the Registry Save (.RSG) file. The applet then copies the Active registry to the specified User registry file and reboots the device.
Load Registry Defaults	The applet copies the Factory Default registry from the OS to the Active registry (by deleting the current registry). The user is asked to verify a reboot, and then the applet performs a restart to activate the factory default registry. If a user password has been set, the applet warns the user that the password will be erased, and asks them to enter it before the reboot is allowed. Note: When the Thor VM3 is reset to factory defaults, a second reboot must be performed to load the WLAN driver. When the Thor VM3 has finished booting, return to the Registry panel and tap Restart,
Restart	When clicked, the OS performs a registry save, and then a restart. OS and CAB files are reloaded.

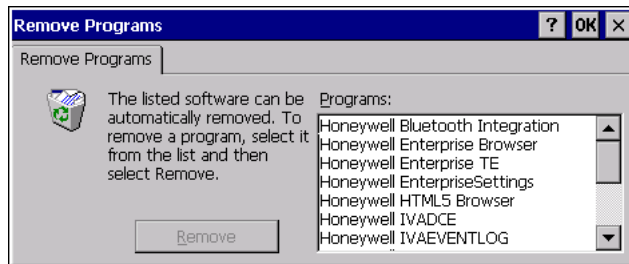
Remove Programs

Start > Settings > Control Panel > Remove Programs

Note: Lists programs installed in RAM that have been marked for removal.

Select a program and tap Remove. Follow the prompts on the screen to uninstall Thor VM3 user-installed only programs. The change takes effect immediately.

Files stored in the My Documents folder are not removed using this option.



Note: Do not remove factory installed programs using this option. Contact [Technical Assistance](#) if factory installed programs must be deleted.

Screen Control

Start > Settings > Control Panel > Screen Control

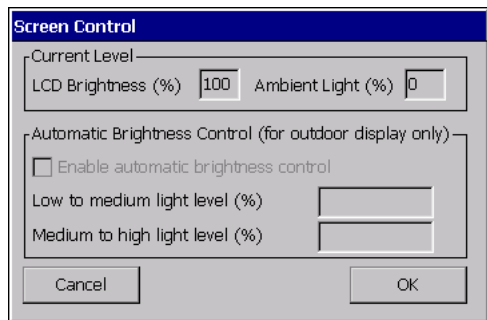
Set screen properties for the Thor VM3.

Factory Default Settings

Current Level	
LCD Brightness (%)	100 (see note)
Ambient Light (%)	(see note)
Automatic Brightness Control	
Automatic brightness control is only available on a Thor VM3 with an outdoor display.	
Enable automatic brightness control	Disabled
Low to medium light level (%)	25
Medium to high light level (%)	75

Note: If Automatic Brightness Control is enabled for an outdoor display, the value for LCD Brightness depends on the Ambient Light %. Otherwise, the display defaults to 100% brightness.

Note: There is no default value for Ambient Light % as it varies depending on the level of light where the Thor VM3 is located. If the Thor VM3 has an indoor display it does not have an ambient light sensor and the Ambient Light % is always 0.



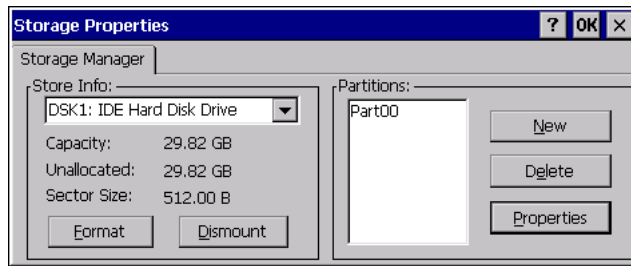
Note: Touch screen defroster controls are located on the [Peripherals](#) control panel.

Current Level

LCD brightness displays the current LCD brightness level. The default brightness is 100%.

Storage Manager

Start > Settings > Control Panel > Storage Manager

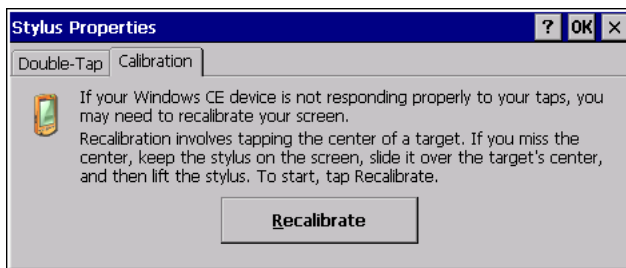
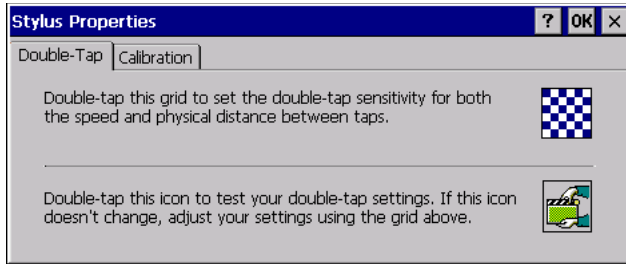


Installed storage devices are listed by device name in the drop-down box. To view information about the disk or perform store operations, select a device from the list.

Stylus

Start > Settings > Control Panel > Stylus

Use this control panel option to set stylus double-tap sensitivity properties and calibrate the Thor VM3 touch panel when needed.



Double-Tap

Follow the instructions on the screen and tap the OK button to save any double-tap changes.

Calibration

Calibration involves tapping the center of a target. If you miss the center, keep the stylus on the screen, slide it over the target's center, and then lift the stylus.

To begin, tap the Recalibrate button on the screen with the stylus. Press and hold the stylus on the center of the target as it moves around the screen. Press the Enter key to keep the new calibration setting or press the Esc key to revert to the previous calibration settings.

System

Start > Settings > Control Panel > System

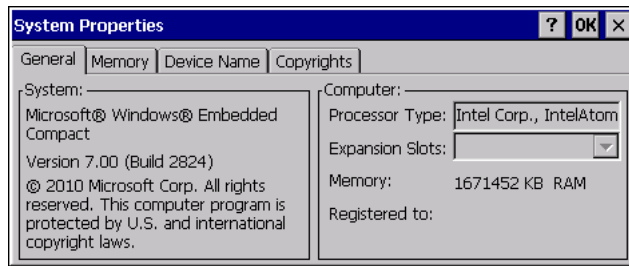
Use these Thor VM3 panels to:

- Review System and mobile device data and revision levels.
- Adjust Storage and Program memory settings.
- Assign a device name and device descriptor.

Factory Default Settings

General	No user interaction
Memory	1/4 storage, 3/4 program memory
Device Name	Unique to equipment type
Device Description	Unique to equipment type
Copyrights	No user interaction

General

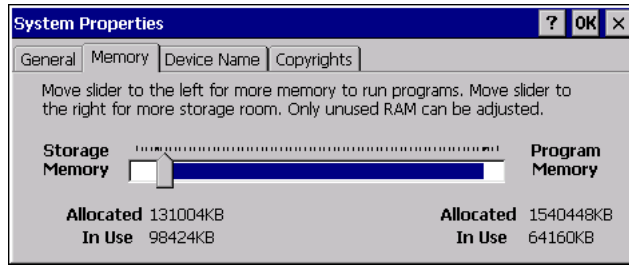


System: This screen is presented for information only. The System parameters cannot be changed by the user.

Computer: The processor type is listed. The type cannot be changed by the user. Total computer memory and the identification of the registered user is listed and cannot be changed by the user.

Memory sizes given do not include memory used up by the operating system. For example, a system with 128 MB may only report 99 MB memory, since 29 MB is used by the operating system. This is actual DRAM memory, and does not include internal flash used for storage.

Memory



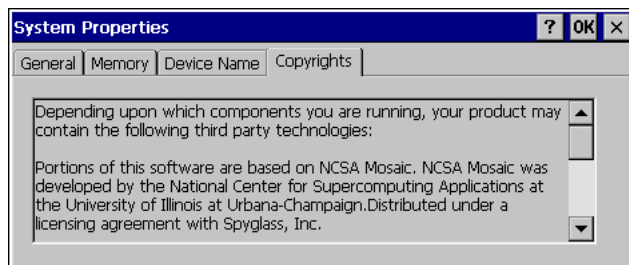
Move the slider to allocate more memory for programs or storage. If there isn't enough space for a file, increase the amount of storage memory. If the mobile device is running slowly, try increasing the amount of program memory.

Device Name



The device name and description can be changed by the user. Enter the name and description using either the keypad or the Input Panel and tap OK to save the changes. This information is used to identify the Thor VM3 to other computers and devices.

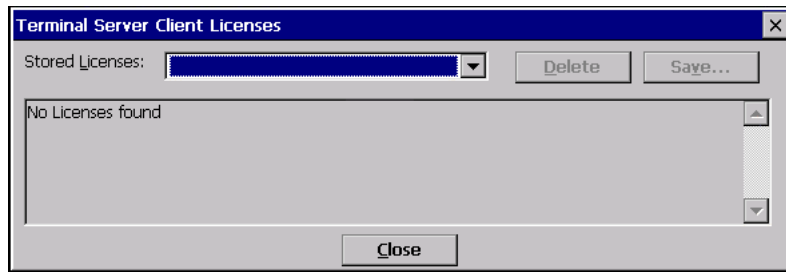
Copyrights



This screen is presented for information only. The Copyrights information cannot be changed by the user.

Terminal Server Client Licenses

Start > Settings > Control Panel > Terminal Server Client Licenses



Any licenses stored on the Thor VM3 appear in the drop-down list. Select a license and tap the Close button. The license is available for use immediately.

Volume and Sounds

Start > Settings > Control Panel > Volume & Sounds

Note: An application may override the control of the speaker volume. Turning off sounds saves power and prolongs battery life.

Set volume parameters and assign sound WAV files to events using these options.

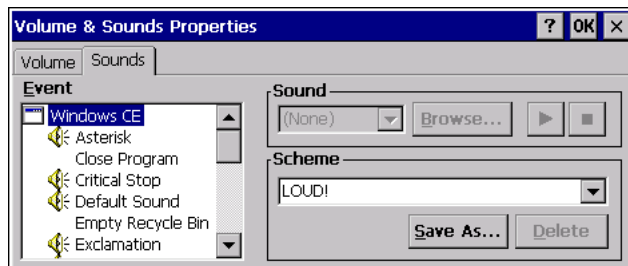
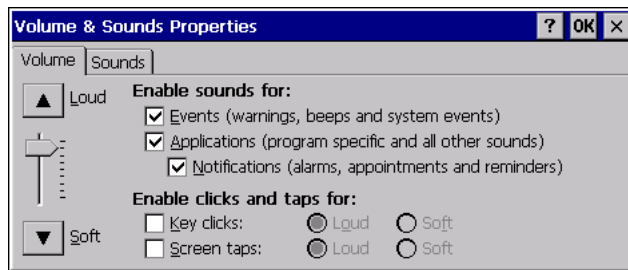
You can also select / deselect sounds for key clicks and screen taps and whether each is loud or soft.

As the volume scrollbar is moved between Loud and Soft, the Thor VM3 emits a tone each time the volume increases or decreases.

Volume must be enabled when you want to adjust volume settings using keypad keys.

Factory Default Settings

Volume	
Events	Enabled
Application	Enabled
Notifications	Enabled
Volume	One level below Loud
Key click	Disabled
Screen tap	Disabled
Sounds	
Scheme	LOUD!



The volume setting is stored in the registry and is recalled at power on.

Note: *Rejected bar codes generate a bad scan beep. In some cases, the receipt of data from the scanner triggers a good scan beep from a tethered scanner, and then the rejection of scanned bar code data by the bar code processing causes a bad scan beep from the mobile device on the same data.*

Good Scan and Bad Scan Sounds

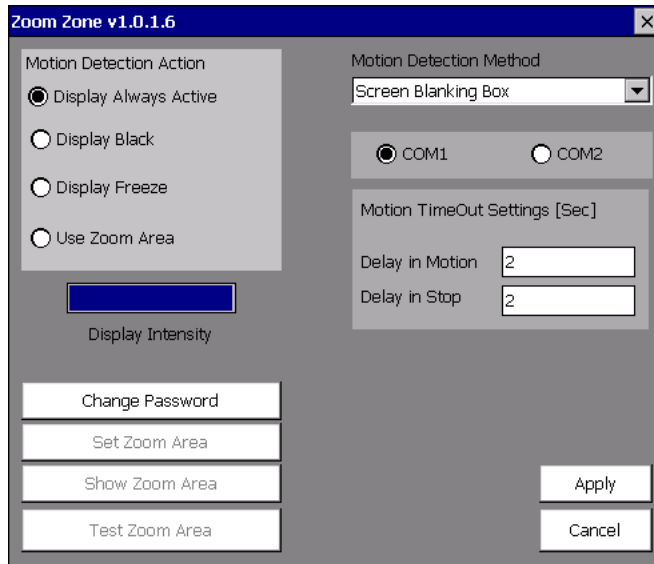
Good scan and bad scan sounds are stored in the Windows directory, as SCAN-GOOD.WAV and SCANBAD.WAV. These are unprotected WAV files and can be replaced by a WAV file of the user's choice.

By default a good scan sound on the Thor VM3 is a single beep, and a bad scan sound is a double beep.

ZoomZone

Start > Settings > Control Panel > ZoomZone

ZoomZone can be used to configure screen blanking behavior.



Motion Detection Action

Determine what to do when motion is detected:

- Display Always Active - The display does not change when motion is detected.
- Display Black - The display is blacked out when motion is detected.
- Display freeze - The display is frozen at the time motion is detected.
- Use Zoom Area - A preconfigured zoom area is displayed when motion is detected.

Motion Detection Method

Select the motion detection method.

The Thor VM3 supports the screen blanking box to determine motion. Select the port (COM1 or COM2) to which the blanking box is attached.

Note: By default, COM1 and COM2 ports are used by Enterprise Data Collection. To use a COM port for screen blanking, access [Enterprise Settings](#) and set Data Collection > Tethered Scanners > Tethered Scanner (COMx) - Enable Scanner Port to off (where COMx is either COM1 or COM2).

Motion Timeout Settings

Screen blanking can be configured to provide delays.

- Delay on Motion - Configure the delay between motion detection and screen blanking. The default is 2 seconds.

- Delay on Stop - Configure the delay between motion stopping and the screen resuming normal behavior. The default is 2 seconds.

Change password

By default, no password is assigned to ZoomZone. If a password is set, the password must be entered to access the ZoomZone user interface to view or change configuration parameters.

To set a password:

1. Tap the Change Password button.
2. Enter the current password. If no password is assigned, leave this entry blank.
3. Enter and confirm the new password. To remove a previously set password, leave the new password blank.
4. Tap OK to confirm changes or Cancel to discard changes.

Set Zoom Area

The ZoomArea can be selected from the current active desktop display. To set the zoom area:

1. Display the desired content on the Thor VM3 desktop.
2. Open the ZoomZone interface.
3. Tap the Set Zoom Area button.
4. Select the desired zoom area by tapping on the upper left corner of the desired area and dragging to the lower right corner of the desired area. The selected area is highlighted by a red outline.

Note: *Be sure to select the desired area from the upper left corner to the lower right. Selecting the area from a different corner may result in nothing (a black box) being displayed.*

5. If the selected area is not satisfactory, repeat the step above to reselect an area.
6. At the top of the display, tap File and select one of the available options:
 - Save - Saves the selected zoom area and returns to the ZoomZone user interface.
 - Test - Previews the zoom area as it would be displayed during screen blanking.
 - Tap Accept Zoom to keep the zoom area and finish, or
 - Tap Reject Zoom to discard the zoom area and be returned to select a different zoom area.
 - Exit - Discards changes and returns to the ZoomZone user interface.

Show Zoom Area

Tap the Show Zoom Area button to show the currently selected zoom area. The selected area is highlighted in red.

To see how the zoom area would be displayed during screen blanking.

When finished, at the top of the display tap File > Exit to exit.

Test Zoom Area

Tap the Test Zoom Area button.

The zoom image is displayed.

When finished, at the top of the display tap File > Exit to exit.

Automatic Firmware Update Utility

The automatic firmware update utility provides an automated process to update the firmware on the Thor VM3. Firmware that can be updated includes BIOS, EC (Embedded Controller) and Screen MCU (Micro Controller Unit). Firmware updates are distributed as cabinet (.cab) files. The .cab file contains the necessary firmware files (BIOS, EC and Screen MCU) and a utility to install firmware files. The firmware update utility is installed as part of the factory software load. This utility can be used to install newer firmware or to revert to older firmware.

Use the Software tab of the [About](#) control panel to determine the currently installed firmware versions.

It may be necessary to update firmware before installing an updated operating system.

Firmware Distribution Files

The following software files must be copied to the \System\FWUpdate folder in the order listed. The files can be copied to the folder manually or remotely. Contact [Technical Assistance](#) for upgrade files.

FWxyyzz.cab - This file contains the firmware update files and a utility to verify version compatibility and install the firmware files. The file name is structured such that xx identifies the last digits of the BIOS firmware version, yy identifies the Embedded Controller firmware version and zz identifies the screen MCU version.

UpdateFW.tag - The file that triggers the update utility to begin. Be sure to copy this file only after the .cab file has been copied. As soon as the Thor VM3 detects the presence of this file, the unit reboots in five seconds.

Update Process

1. Copy the files listed above to the \System\FWUpdate folder. Copy the.cab file first then the .tag file.



Be sure to copy the updatefw.tag file to the \System\FWUpdate folder last. The Thor VM3 begins the reboot process after detecting this file.

- b. The Thor VM3 automatically reboots and starts the update process after detecting the updatefw.tag file. No user intervention is required to reboot the Thor VM3 or run the update utility after the reboot. The update utility operates in a DOS screen.
- c. If the update is not successful, the update is tried three more times.
- d. If the update fails, the \System\FWUpdate folder is cleaned up leaving flashapp.exe, a flashlog.txt and a retry.tag file.
- e. Review the flashlog.txt file. The log file lists what firmware (if any) has been installed. If an error has occurred during the update process, it is detailed in the flashlog.txt file.

- f. Review the Software tab of the [About](#) to verify the installed firmware versions. Compare the digits from the name of the cab file (see above) with those shown in the About control panel.

Configuration Cloning Utility (CCU)

This utility provides an automated process to read the configuration settings from one Thor VM3 and then apply those settings to one or more other Thor VM3s with the same operating system. The Configuration Cloning Utility (CCU) is installed as part of the factory software load. Configuration settings for the following items may be included:

- RFTerm
- Honeywell Control Panels:
 - USB powered in Sleep
 - Enable/disable touch screen
- Defroster settings
 - COM port pin 9 +5V or RI

The CCU allows a configuration file (ccf file) to be created by:

- Reading the current program settings from the source Thor VM3
- Reading the default program settings from a ddf file.

If desired, settings can be modified (advanced user only) before saving the ccf file. If any changes have been made, the CCU can also apply them to the source Thor VM3.

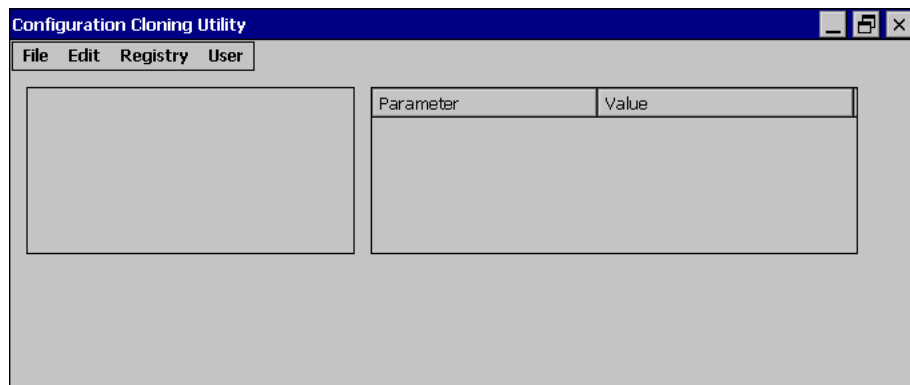
The configuration file can then be copied and deployed to the destination Thor VM3(s). Options include:

- Import changes only - Only those configuration settings which have been modified from their default value are applied to the destination Thor VM3. All other settings on the destination Thor VM3 are left unchanged.
- Import changes and defaults - All configuration settings are applied to the destination Thor VM3. If a setting was modified on the source Thor VM3 the modified value is applied to the destination Thor VM3. Otherwise the default value is applied for that setting on the destination Thor VM3.

The Configuration Cloning Utility can be run as a GUI or command line interface.

Configuration Cloning Utility GUI

To launch the Client Configuration Utility, locate the CCU icon either on the desktop or by selecting Start > Programs > CCU.



Menu Options

File

The File menu contains information for working with the configuration files.

About

Displays version and copyright information for the Configuration Cloning Utility.

Open

Opens a configuration file. The CCU looks for configuration files in the \System\DDF folder. CCU can open the following files types:

- ddf files - These files contain the factory default values for the software. These files are placed on the Thor VM3 when the applicable software was installed or upgraded. Use this option if you wish to start a configuration settings file based on the factory defaults.
- ccf files - These files contain the modified values for the software settings. These files are created with the CCU . ccf files are encrypted for security. Once a ccf file is created on one Thor VM3 it can be copied to other Thor VM3s to duplicate the configuration. An existing ccf file can be opened, modified, applied to the Thor VM3, saved, saved with a different name, etc.

Close

Closes the open data file.

Save

Saves the open data file as a ccf file.

- If a ccf file was opened, it is saved with the same name and in the same location.
- If a ddf file was opened, a prompt is displayed for the name to assign to the new ccf file. By default a new file is saved at \System\DDF though a different location can be specified.

Save As

Saves the open data file as a ccf. If a ccf file was opened, this option allows a new name or location for the data file to be specified during the save process.

Exit

Exits the CCU. A prompt may be displayed if there are unsaved ccf changes.

Edit

Provides access to the standard Windows Cut, Copy and Paste functions. These functions can be used to manipulate the settings within the configuration file.

Registry

Reads values from and writes values to the system registry.

Import Settings

Imports the current settings from the Windows registry for the selected application(s). When selected, the available programs from which settings can be read are displayed in a tree format.

Apply Settings

Applies the current settings to the Windows registry for the selected applications. During the process, a Default all Non-Configured Parameters prompt is displayed:

- Tap Yes to set all parameters not configured in the ccf file to defaults on the destination device.
- Tap No to apply the values from the ccf file and leave all other parameters as-is on the destination device.
- Tap Cancel to exit with no changes to the destination device.

Upon completion, exit the CCU and reboot the Thor VM3 so changes can take effect.

User

Selects the desired user access level:

- Basic - Basic users can open files and import setting from the system registry. Basic users cannot modify settings from an opened file or setting imported from the registry. Basic users can apply setting to the system registry.
- Advanced - Advanced users can open files and import settings registry. Advanced users can modify the values from either an opened file or imported from the system registry. Advanced users can apply settings to the system registry.

Shortcuts

The table below lists the valid shortcut key combinations within the CCU.

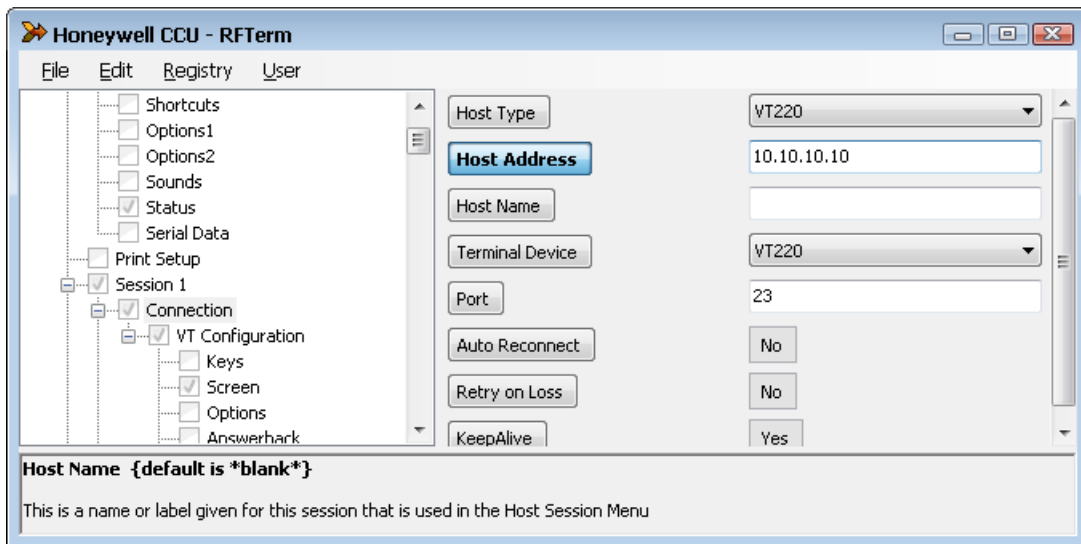
Shortcut key	Action
CTRL + A	Opens About screen
CTRL + O	Opens folder with CCF files (\System\DDF)
CTRL + C	Closes the open file (only valid when a ccf or ddf file)
CTRL + S	Application is saved
CTRL + E	Application is closed

Shortcut key	Action
CTRL + X	Cuts the data
CTRL + C	Copies the selected data to the clipboard
CTRL + V	Pastes the data from the clipboard at the current location
CTRL + I	Displays import setting list
CTRL + L	Modified settings are applied
CTRL + B	Basic settings are displayed
CTRL + D	Advanced settings are displayed

Modifying Settings

Advanced user only. Basic user cannot view the expanded tree or modify settings.

When settings have been loaded (either from Registry > Import Settings or File > Open) the following screen is displayed.



The left side of the upper pane displays the current program settings that have been imported or are part of the open ccf file. Click the + icon to expand the tree or the - icon to condense the tree. When the tree is expanded sufficiently to view the settings, the settings are displayed in the right portion of the upper pane. When a parameter is selected, the name of the parameter is highlighted in blue. The parameter name remains highlighted in blue (regardless of if the value was changed or not) until the parameter name button is tapped a second time. Enter a new value for the parameter as desired. Depending on the parameter selected, the following entry types are available:

- Text box - This is an open entry field and a new value can be typed into the text box. Depending on the parameter, there may be validity checking to ensure the entry in the text box is within the valid range.
- Pull-down list - A down arrow indicates the setting must be selected from a pull-down list of available values. Expand the list and select the desired setting from the list of options.

- Button - Items with two choices (such as Off or On) are displayed as a button. Tapping the button switches the value for the parameter.

When all desired parameter settings have been made, tap File > Save to save as a ccf file which can be used to deploy these settings on another Thor VM3.

If the parameter setting changes should also be applied to this Thor VM3, select Registry > Import Settings. After importing the settings, a reboot is necessary for the changes to take effect on the Thor VM3.

Using the CCU

Refer to the following examples for instructions on using the CCU.

Example 1: Import the current settings and save to a file

To import the current settings from the Thor VM3 running the CCU:

1. If you want to view the settings, tap User and select Advanced.
2. Tap Registry > Import settings.
3. Select the desired program(s) from which to import the settings.
4. Select File > Save then specify a file name and tap Save to save the settings to a ccf file.
5. The ccf file can be used to configure another Thor VM3. See Example 4.

Example 2: Modify settings on the current device and save to a file

To modify the settings on the Thor VM3 running the CCU:

1. Tap User and select Advanced.
2. Tap Registry > Import settings.
3. Select the desired program(s) from which to import the settings.
4. Make any desired changes to the settings.
5. Tap Registry > Apply settings
6. Select File > Save then specify a file name and tap Save to save the settings to a ccf file.
7. Reboot the Thor VM3 for the new settings to take effect.
8. The ccf file can be used to configure another Thor VM3. See Example 4.

Example 3: Reset a device to system defaults

To import and apply the default values to the Thor VM3 running the CCU:

1. If you want to view the default settings before applying, User and select Advanced.
2. Tap File > Open and change the file type to ddf files (*.ddf).
3. Select the desired ddf file(s) for the software program(s) to return to default values.
4. Tap File > Save and specify a file name for the ccf file.

5. Tap Registry > Apply settings
6. Reboot the Thor VM3 for the new settings to take effect.
7. The ccf file can be used to configure another Thor VM3. See Example 4.

Example 4: Clone settings to another device

1. Create a ccf file using any of the above examples.
2. Copy the ccf file to \System\DDF on the destination Thor VM3.

Note: *Rather than using the CCU GUI, the command line can be used to apply the settings to the destination device.*

3. Open the CCU on the destination device.
4. Tap File > Open and select the ccf file that was copied to the device.
5. Tap Registry > Import.
6. When prompted to Default all Non-Configured Parameters:
 - Tap Yes to set all parameters not configured in the ccf file to defaults on the destination device.
 - Tap No to apply the values from the ccf file and leave all other parameters as-is on the destination device.
 - Tap Cancel to exit with no changes to the destination device.
7. Reboot the Thor VM3 for the new settings to take effect.

Introduction

Requirement - ActiveSync (version 4.5 or higher for Windows XP desktop/laptop computers) must be resident on the host (desktop/laptop) computer. Windows Mobile Device Center (version 6.1 or higher) is required for a Windows Vista/Windows 7/Windows 8 desktop/laptop computer. ActiveSync and Windows Mobile Device Center for the PC is available from the Microsoft website. Follow their instructions to locate, download and install ActiveSync or Windows Mobile Device Center on your desktop computer.

Note: *For readability in this section, ActiveSync will be used in instructions and explanations. If you have a Windows Vista, Windows 7, or Windows 8 operating system on your desktop/laptop, replace ActiveSync with Windows Mobile Device Center.*

Using Microsoft ActiveSync, you can synchronize information on your desktop computer with the Thor VM3 and vice versa. Synchronization compares the data on your mobile device with your desktop computer and updates both with the most recent data.

For example, you can:

- Back up and restore your device data.
- Copy (rather than synchronize) files between your device and desktop computer.
- Control when synchronization occurs by selecting a synchronization mode. For example, you can synchronize continually while connected to your desktop computer or only when you choose the synchronize command.

By default, ActiveSync does not automatically synchronize all types of information. Use ActiveSync Options to specify the types of information you want to synchronize. The synchronization process makes the data (in the information types you select) identical on both your desktop computer and your device.

When installation of ActiveSync is complete on your desktop computer, the ActiveSync Setup Wizard begins and starts the following processes:

- connect your device to your desktop computer,
- set up a partnership so you can synchronize information between your device and your desktop computer, and
- customize your synchronization settings.

Because ActiveSync is already installed on your device, your first synchronization process begins automatically when you finish setting up your desktop computer in the ActiveSync wizard. For more information about using ActiveSync on your desktop computer, open ActiveSync, then open ActiveSync Help.

Initial Setup

The Thor VM3 supports ActiveSync over a serial port. The Thor VM3 does not support a USB ActiveSync connection.

Connect via Serial Port

In order to use a serial port for ActiveSync:

- A full-wired serial null-modem cable is required
- By default, COM1 and COM2 ports are used by Enterprise Data Collection and this must be disabled for the port being used for ActiveSync.
- Pin 9 of the desired COM port must be set to RI,

Configure the serial port for ActiveSync

1. Select Start > Settings > Control Panel > Enterprise Settings.
2. From Enterprise Settings, select Data Collection >Tethered Scanners.
3. Select the desired port, Tethered Scanner (COM1) or Tethered Scanner (COM2).
4. Select Enable scanner port.
5. Uncheck Enable scanner port.
6. Select OK to confirm.
7. Select Menu > Exit to close Enterprise Settings.
8. From the control panel, select Options > Misc tab.
9. Uncheck the box for 5V on COM1 or 5V on COM2 as appropriate. When unchecked, pin 9 provides the Ring Indicator (RI) signal instead of delivering power on pin 9.
10. Click OK to save the change and close the Options pane.
11. The COM port is now ready for ActiveSync.

Configure ActiveSync Settings

1. Select Start > Settings > Control Panel > Network and Dial-up Connections.
2. Right-click on ActiveSync.
3. Select Properties.
4. Select Serial Cable on COM1: or Serial Cable on COM2: as appropriate.

5. Tap Configure.
6. Configure the baud rate and other parameters as desired.

Note: *The default baud rate is 19200. The higher the baud rate chosen, the less reliable the connection tends to be.*

7. Tap OK to close and save the Device Properties window,
8. Tap TCP/IP Settings.
9. All settings should be checked except Use Slip.
10. Tap OK to close TCP/IP Settings window.
11. Tap Security Settings.
12. Make sure Use data Encryption, Use Extensible Authentication Protocol (EAP) and Preview user name and password are unchecked. All other options should be checked.
13. Close OK to close all open panels.

Configure PC Connection Settings

1. Select Start > Settings > Control Panel > PC Connection.
2. Check Allow connection with desktop computer when device is attached.
3. Verify that pane says Connect using 'ActiveSync'. If necessary, tap the Change button to select the correct setting.

Note: *Do not use USB as this option is not supported on the Thor VM3.*

4. Click OK to confirm settings and close the open window.

Setup PC or Laptop

The PC or laptop must have a Windows operating system.

1. Verify Windows Mobile Device Center (WMDC) is installed if the PC or laptop is running a Windows 7 or greater operating system. For a PC or laptop with a Windows XP operating system, ActiveSync must be installed.

Note: *WMDC can be downloaded from microsoft.com.*

2. Open WMDC and select Mobile Device Settings > Connection Settings.
3. Make sure Allow connections to one of the following is checked.
4. Select the COM port to which the full-wired null-modem cable is attached.
5. Check the option Allow automatic device authentication.
6. Check the option Allow data connections on the device when connected to the PC.
7. Click OK to save the settings and close the open window.

Start the ActiveSync Connection

The ActiveSync connection should start automatically when the Thor VM3 is connected to the PC or laptop.

If ActiveSync does not start automatically, it can be started manually:

8. On the Thor VM3, select Start > Settings > Network Connections and double-click ActiveSync.
9. On the Thor VM3, select Start > Run and type in the repllog.exe command and press Enter.

Note: Do not use the ActiveSync link on the Thor VM3 desktop as this link attempts to connect to a server to synchronize emails.

Explore

- From the ActiveSync Dialog on the Desktop PC, tap the Explore button.
- From the Windows Mobile Device Center interface select File Management > Browse the contents of your device.

This function allows you to explore the Thor VM3 from the PC side, with some limitations. You can copy files to or from the mobile device by drag-and-drop. You will not be allowed to delete files or copy files out of the \Windows folder on the mobile device. (Technically, the only files you cannot delete or copy are ones marked as system files in the original build of the Windows image. This, however, includes most of the files in the \Windows folder).

Backup Data Files using ActiveSync

Use the following information to backup data files from the Thor VM3 to a desktop or laptop PC using the appropriate cable and Microsoft's ActiveSync.

Prerequisites

A partnership between the mobile device and ActiveSync has been established.

Connect

Connect the serial cable to the PC (the host) and the mobile device (the client).

The "Get Connected" wizard on the host PC checks COM ports to establish a connection for the first time.

Disconnect

- Disconnect the cable from the Thor VM3.

- Open the status bar icon in the lower right hand corner of the status bar. Then tap the Disconnect button.

When the Thor VM3 loses connection, e.g.: enters Suspend Mode, etc., the connection to ActiveSync will be lost.

Reset and Loss of Host Re-connection

ActiveSync assigns a partnership between a Thor VM3 (the client) and a host computer. A partnership is defined by two objects – a unique computer name and a random number generated when the partnership is first created. An ActiveSync partnership between a unique client can be established to two hosts.

When the mobile device is reset (return to default settings), the random number is deleted – and the partnership with the last one of the two hosts is also deleted. The host retains the random numbers and unique names of all devices having a partnership with it. Two clients cannot have a partnership with the same host if they have the same name. (Control Panel > System > Device Name)

If the reset mobile device tries to reestablish the partnership with the same host PC, a new random number is generated for the mobile device and ActiveSync will insist the unique name of the mobile device be changed. If the mobile device is associated with a second host, changing the name will destroy that partnership as well. This can cause some confusion when re-establishing partnerships with hosts.

ActiveSync Help

ActiveSync on the host says that a device is trying to connect, but it cannot identify it

Verify the cable is attached to the Thor VM3. Disconnect and reconnect the cable from the PC.

Check that the correct connection is selected.

See *Reset and Loss of Host Re-connection*, above.

ActiveSync indicator on the host (disc in the toolbar tray) turns green and spins as soon as you connect the cable, before tapping the Connect icon (or REPLLLOG.EXE in the Windows directory).

One or more control lines are tied together incorrectly. This is usually a cable problem.

ActiveSync indicator on the host turns green and spins, but connection never occurs

Check that the correct connection is selected.

-or-

Incorrect or broken data lines in cable.

WIRELESS NETWORK CONNECTIONS

Managing Wireless Connections

The Thor VM3 has an 802.11 a/b/g/n WLAN radio and an optional WWAN radio.

- The WLAN radio is configured using the [WLAN Wireless Configuration Utility \(WCU\)](#).
- The WWAN radio is configured using the [VM3 WWAN Connection Manager](#).
- The VM3 Connection Manager also provides configuration options for hyper-roaming between WLAN and WWAN connections.

WLAN Wireless Configuration Utility (WCU)

The 802.11 wireless client device is a Qualcomm Atheros AR950 802.11 a/b/g/n WLAN adapter. This wireless radio is configured by the Wireless Configuration Utility (WCU).

Dynamic vs. Fixed IP Address

To change between dynamic and fixed IP address select (Start > Control Panel > Network and Sharing Center > Change Adapter Settings, right click on desired adapter, and select Properties > Internet Protocol Version 4 (TCP/IPv4) > Properties). Always reboot the Thor VM3 after changing the IP address type.

Important Notes



It is important that all dates are correct on the Thor VM3 and host computers when using any type of certificate. Certificates are date sensitive and if the date is not correct authentication will fail.

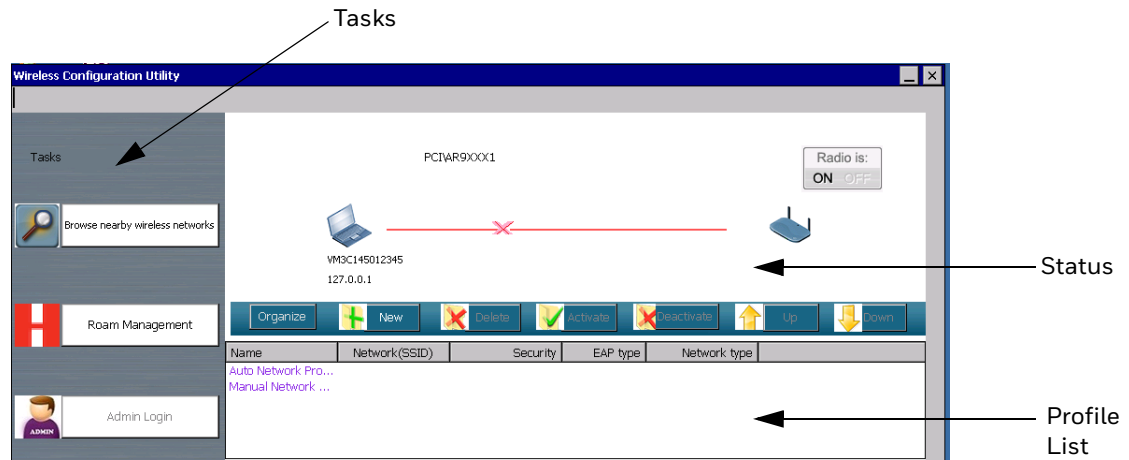


When using the 802.11 radio, the U-NII 1 band is the preferred band for indoor operation. For regulatory domains in which the U-NII 3 band is allowed, the following channels are supported: 149, 153, 157 and 161. The AP must be configured accordingly.

Using the Wireless Configuration Utility

Note: When finished making changes the device should be restarted afterwards.

Start > All Programs > Honeywell > Honeywell (version ID) > WCU or
WCU Icon on Desktop



When using any profile that requires the user to enter credentials (user name, password), the user should enter those credentials when the window pops up. If the credentials are not entered then, the credentials window may be hidden by other windows.

This screen contains several items:

- [Tasks](#)
- [Status](#)
- [Profile List](#)


Tasks


Tasks are listed on the left side of the screen:

- [Browse Nearby Wireless Networks](#)
- [Roam Management](#)
- [Admin Login](#)

Status

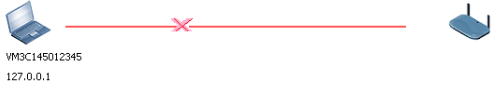


The status of the radio card is shown in the upper right hand of the screen:

Radio is on.  Tapping the button turns the radio off.

Radio is off.  Tapping the button turns the radio on.

Note: The radio status can only be changed when the admin is logged on. Tapping the icon has no effect when not logged in.

The status of the network connection is above the profile list.

	<p>The radio has been turned off.</p> <ul style="list-style-type: none"> • Tap the radio off icon to turn the radio on. • When the status of the radio is changing a message may be displayed such as “Radio has been turned on”.
	<p>The radio is on but is not connected:</p> <ul style="list-style-type: none"> • If there are one or more auto profiles, none of them are able to connect. • If there are one or more manual profiles, none of them have been activated.
	<p>The radio has successfully connected to the network:</p> <ul style="list-style-type: none"> • If security is enabled, the authentication process has been completed. • The SSID of the network is displayed below the access point icon.

Profile List

All profiles that have been created are listed in this section. Profiles can be configured for auto connect or manual connect and are subdivided by connection type in this list.

From the profile list, an admin can:

- Organize - Open or rename a profile
- New - Create a new profile
- Delete - Delete an existing profile
- Activate - Make an inactive profile the active profile. The inactive profile may be either a manual or an auto profile not currently in use.
- Deactivate - When the current active profile is selected, this option deactivates that profile. If there is an inactive auto profile, that profile may become active.
- Up - If there are multiple profiles, the Up feature moves the selected profile up the list. This feature is available for both the Auto and Manual profiles.
- Down - If there are multiple profiles, the Down feature moves the selected profile down the list. This feature is available for both the Auto and Manual profiles.

Similar features are also available by right clicking on a profile name:

- New - Create a new profile.
- Open - Open the selected profile to view or edit properties.
- Activate - Make an inactive profile the active profile. The inactive profile may be either a manual or an auto profile not currently in use.
- Deactivate - When the current active profile is selected, this option deactivates that profile. If there is an inactive auto profile, that profile may become active.
- Disconnect - If the selected profile is connected, this option disconnects the profile.

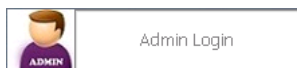
Admin Login

All users can select from existing profiles and use the browse feature to view nearby networks.

It is necessary to log in to create or edit profiles, turn the radio off or on and to adjust the roaming parameters.



Admin is not logged in

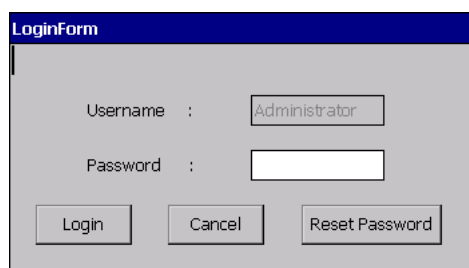


Admin is logged in

The appearance of the icon indicates if the admin is logged in or not.

To log in:

1. Tap the Admin Login icon.
2. Enter the password. The default password is Honeywell.



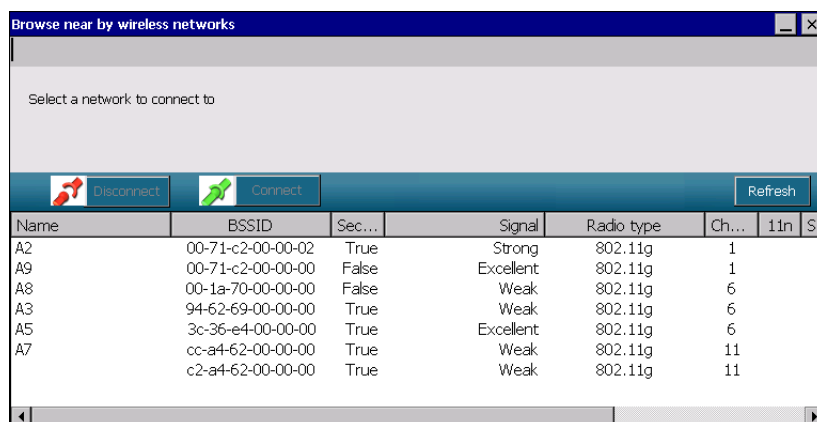
3. Tap the Login button to log in or Cancel to exit without logging in.

To change the default password:

1. Tap the Admin Login icon.
2. Tap the Reset Password button.
3. Enter the current password.
4. Enter and confirm the new password.
5. Tap Reset to save the new password or Cancel to exit without changing the password.

Browse Nearby Wireless Networks

Tap the Browse nearby wireless networks to open the open this window.



Tap the Refresh button to update the network list.

For each network discovered the following attributes are listed:

- Network Name (SSID) - Name of the network (Service Set ID).
- BSSID - Basic Service Set ID, a unique ID to an access point in the network.
- Security - Indicates if the access point is using security. A lock icon is displayed if the network is using security.
- Signal - A graphic representation of the signal strength plus (0 to 4 bars) plus a text description of signal strength.
- Radio Type - The type of radio in the access point, i.e. 802.11a, 802.11g, etc.

- Channel - The channel the access point is using.
- 11n - If an icon is displayed, the access point supports 802.11n.
- Super - If an icon is displayed, the access point supports Atheros' Super AG features.
- XR - If an icon is displayed, the access point supports Atheros' extended range (ER) technology.
- WPS - If an icon is displayed, the access point supports WPDS (Wi-Fi Protected Setup).
- Type - Identifies the network type, infrastructure or Ad Hoc.

Note: *Tapping on any of the column headings will sort the network list by the contents of that column.*

If logged on as admin, tap on any network in the list to create a profile for that network.

Creating a Profile

To create from the Profile list,

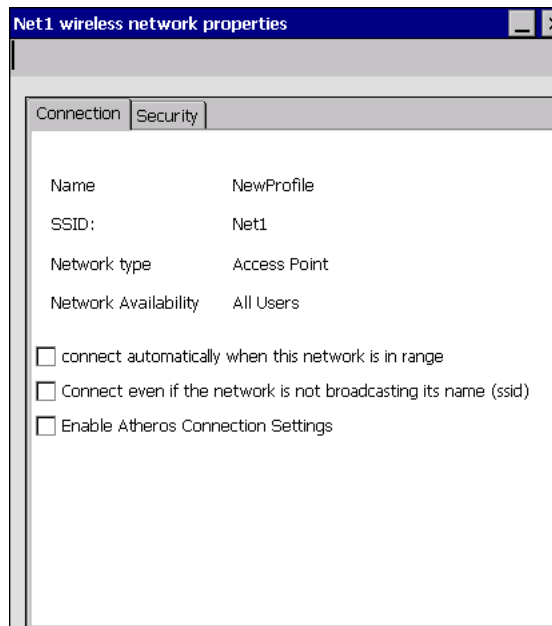
1. Log in as admin.
2. Tap the **New** button.
3. Select the desired profile type - auto connect, manual connect or Ad Hoc.
4. Enter a profile name and network name.
5. Tap **Next**.
6. Tap **Connect To...** to connect to the network or tap **Change connection settings** for additional configuration options including [Security](#).

To create a profile from the nearby networks:

1. Log in as admin.
2. Tap the **Browse** button.
3. Tap the desired network then tap the **Connect** icon or double tap the desired network.
4. Change the profile name if desired.
5. Tap **Advanced security settings** for additional configuration options including [Security](#).
6. Tap **OK** to exit and save the profile or type **Cancel** to exit without creating a profile.

Advanced Profile Configuration

Connection



This tab shows the basic information used to create the profile.

Options include:

- Connect automatically when this network is in range - If the profile was created as an auto connect profile, this box is checked. If created as a manual profile, this box is unchecked.
- Connect to a more preferred network if available
- Connect even if the network is not broadcasting its name (SSID) - If a network is not broadcasting its SSID, check this box.
- Enable Atheros connection settings.

Note: Atheros connection settings must be enabled to use CCX. It is disabled by default.

Security

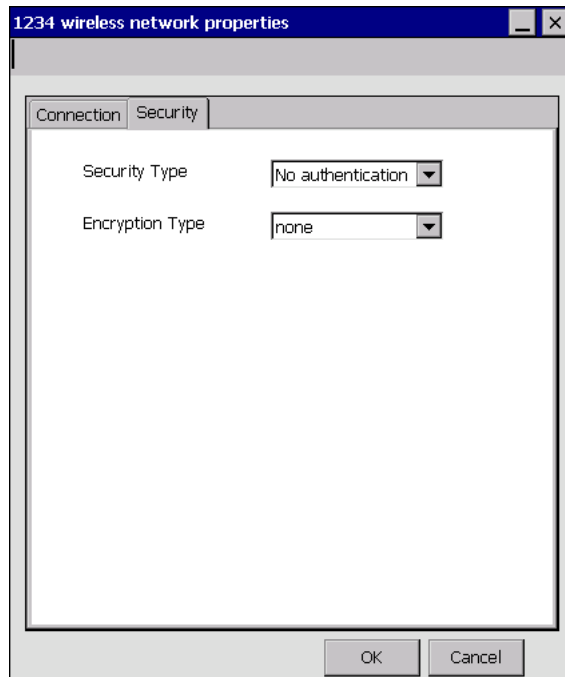
The options available on the security tab will depend on the security type and encryption type selected.

Review the appropriate section for configuring the WCU for network security:

- [Open \(No Security\)](#)
- [WEP](#)
- [WPA2-Personal](#)
- [PEAP-TLS](#)
- [PEAP-MSCHAP](#)

- PEAP-GTC
- LEAP
- EAP-FAST PEAP
- EAP-FAST TLS
- EAP-TLS
- EAP-TTLS

Open (No Security)



To configure for open (no security):

1. Set Security Type to No authentication (Open).
2. Set Encryption Type to none.
3. Tap OK.
4. From the profile listing, make sure the desired profile is active.
5. Verify the connection using [Status](#).

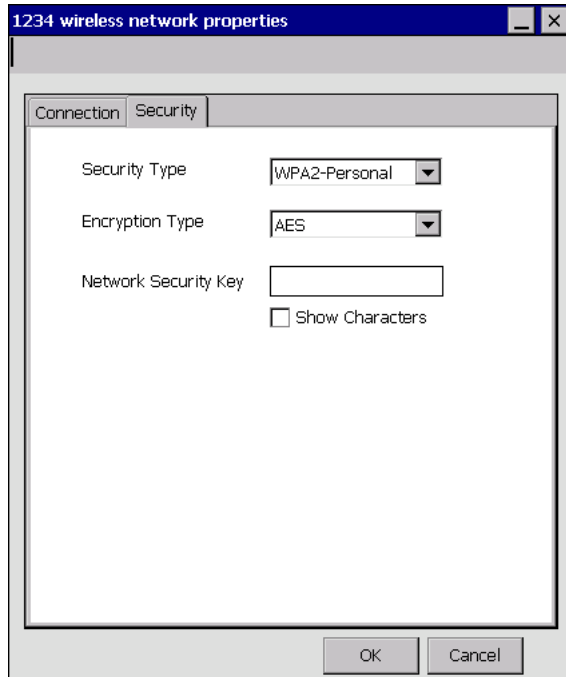
WEP



To configure for WEP:

1. Set Security Type to No authentication (Open).
2. Set Encryption Type to WEP.
3. Enter the Network Security Key.
4. Select the Key Index.
5. Tap OK.
6. From the profile listing, make sure the desired profile is active.
7. Verify the connection using [Status](#).

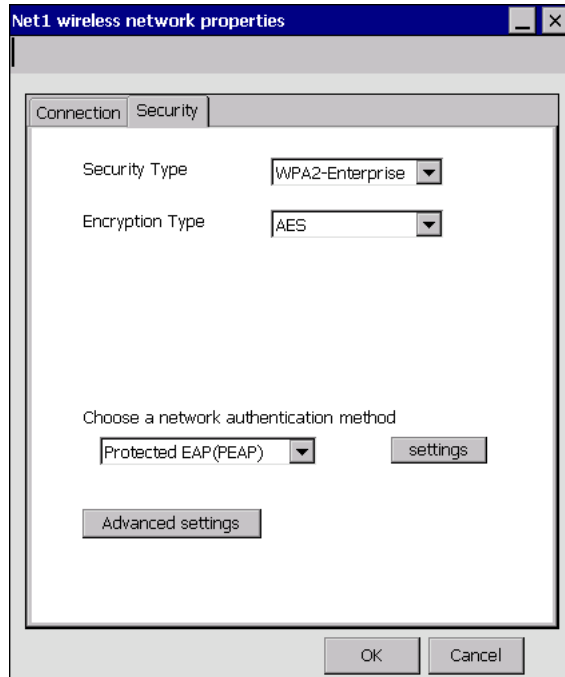
WPA2-Personal



To configure for WPA2-Personal:

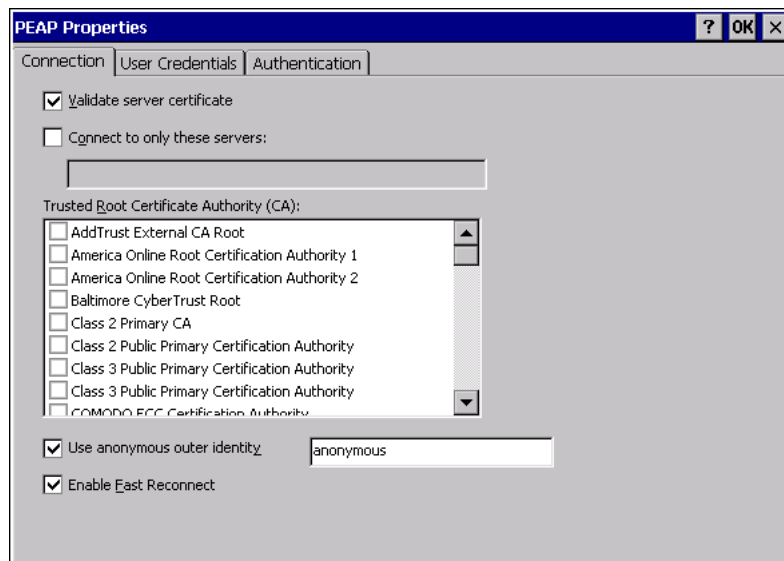
1. Set Security Type to WPA2-Personal.
2. Set Encryption Type to AES.
3. Enter the Network Security Key.
4. Tap OK.
5. From the profile listing, make sure the desired profile is active.
6. Verify the connection using [Status](#).

PEAP-TLS



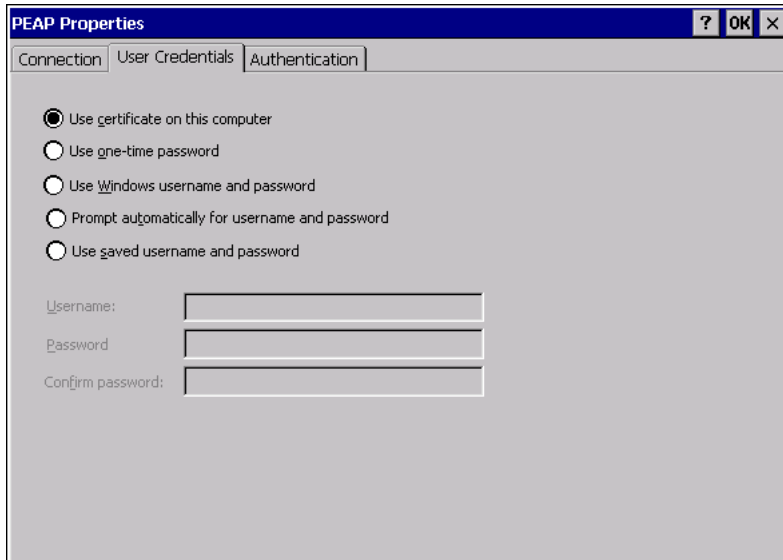
To configure for PEAP-TLS:

1. Set Security Type to WPA2-Enterprise or CCKM.
2. Set Encryption Type to AES.
3. Set network authentication method to Protected EAP (PEAP).
4. Tap the Settings button.
5. Select the Connection tab.



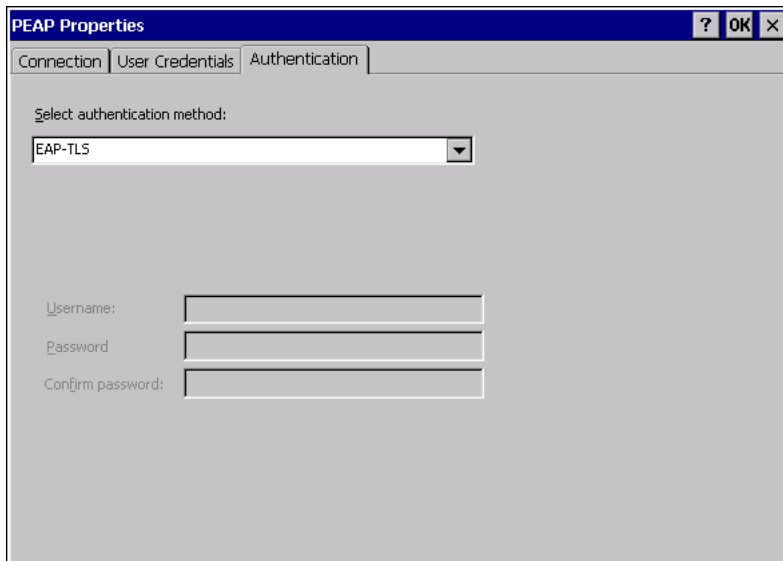
6. Select Validate server certificate.
7. Select the trusted root certificate from the listed certificates.

8. Select the User Credentials tab.



9. Select Use certificate on this computer.

10. Select the Authentication tab.



11. Select Use certificate on this computer.

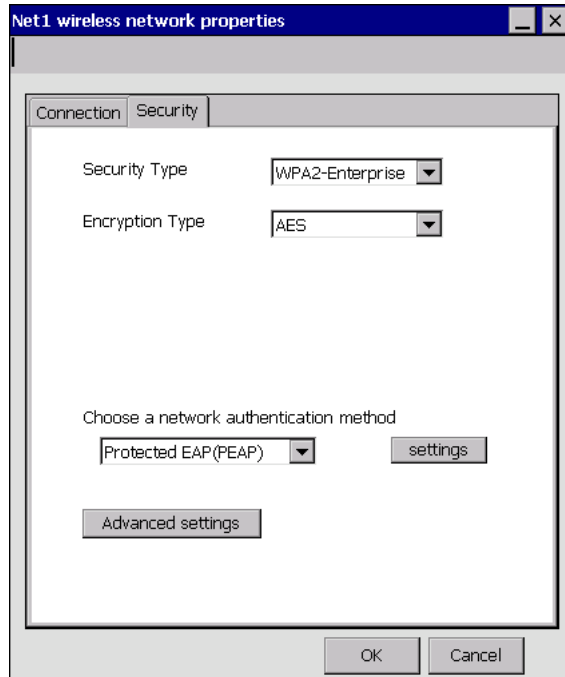
12. Select EAP-TLS as the authentication method.

13. Tap OK to close any open windows.

14. From the profile listing, make sure the desired profile is active.

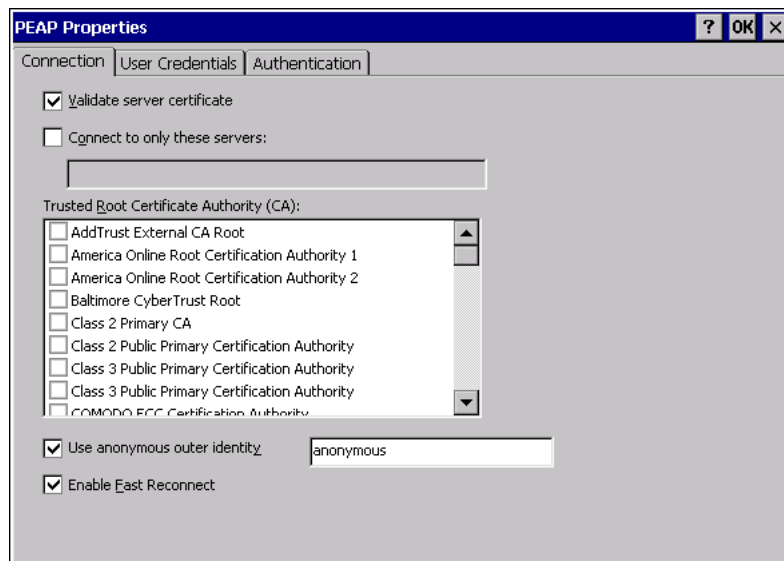
15. Verify the connection using [Status](#).

PEAP-MSCHAP



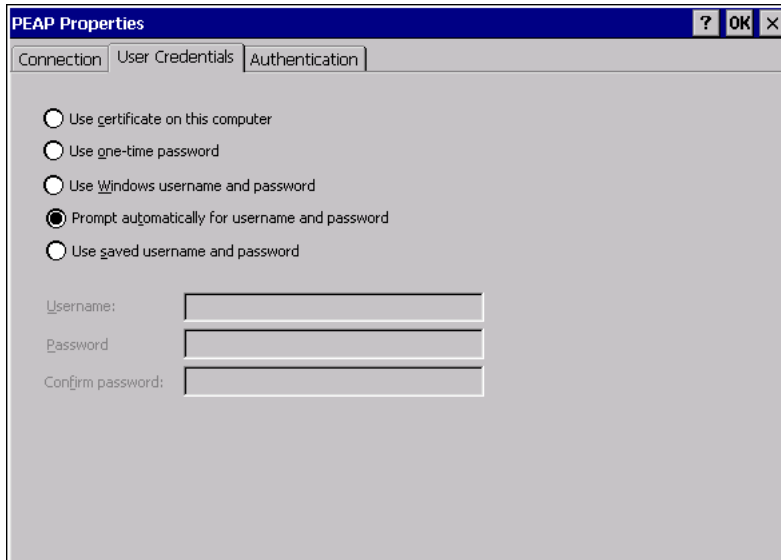
To configure for PEAP-MSCHAP:

1. Set Security Type to WPA2-Enterprise or CCKM.
2. Set Encryption Type to AES.
3. Set network authentication method to Protected EAP (PEAP).
4. Tap the Settings button.
5. Select the Connection tab.



6. Select Validate server certificate.
7. Select the trusted root certificate from the listed certificates.

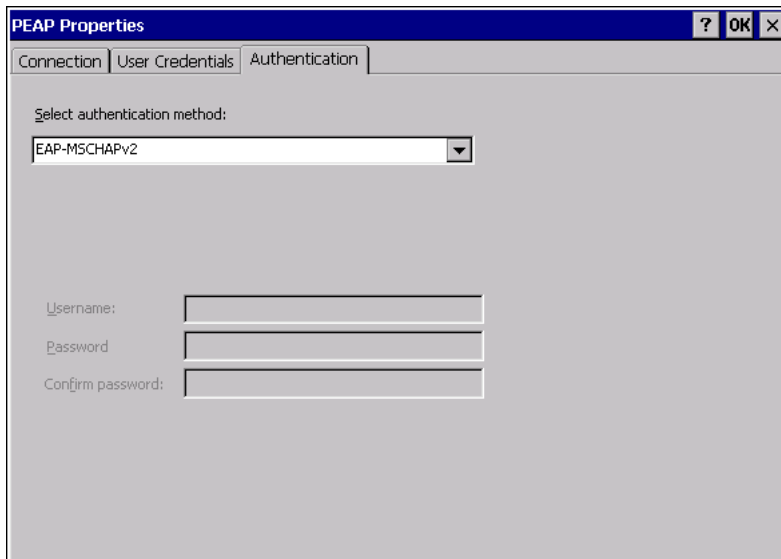
8. Select the User Credentials tab.



9. Select the desired credentials method of providing credentials. Prompt automatically for username and password is recommended.

10. If saved username and password is selected, enter the credentials now.

11. Select the Authentication tab.

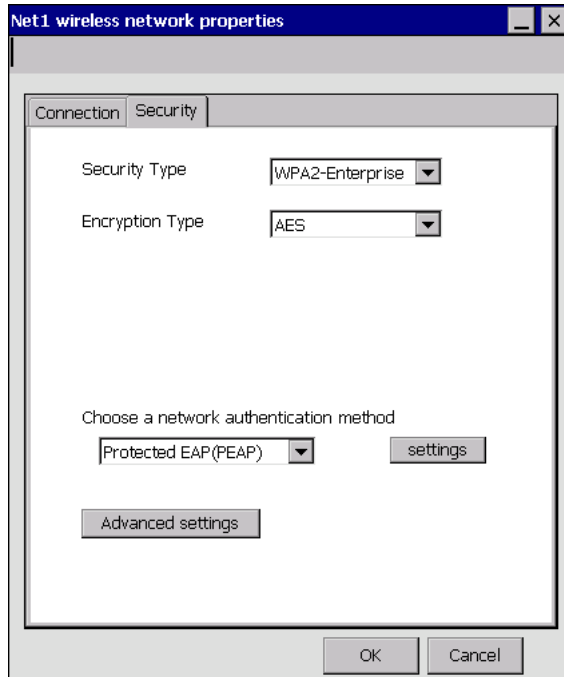


12. Select EAP-MSCHAPv2 as the authentication method.

13. Tap OK to close any open windows.

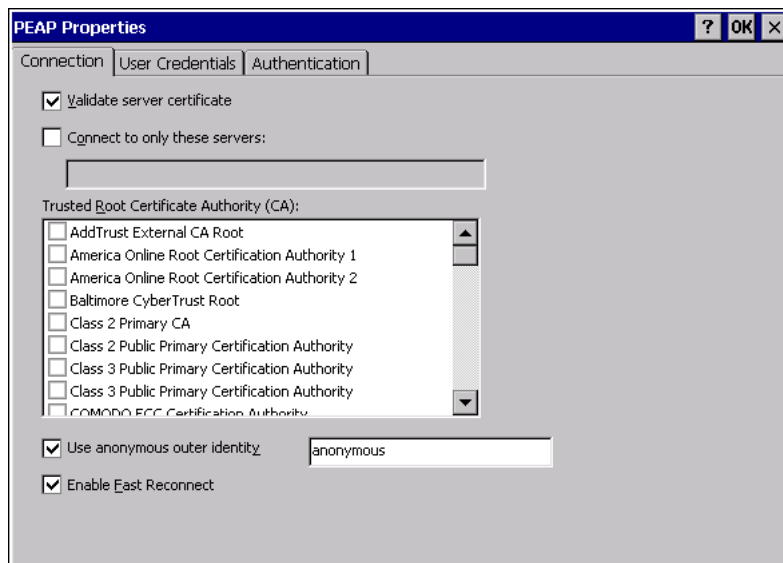
14. From the profile listing, make sure the desired profile is active.

15. Verify the connection using [Status](#).



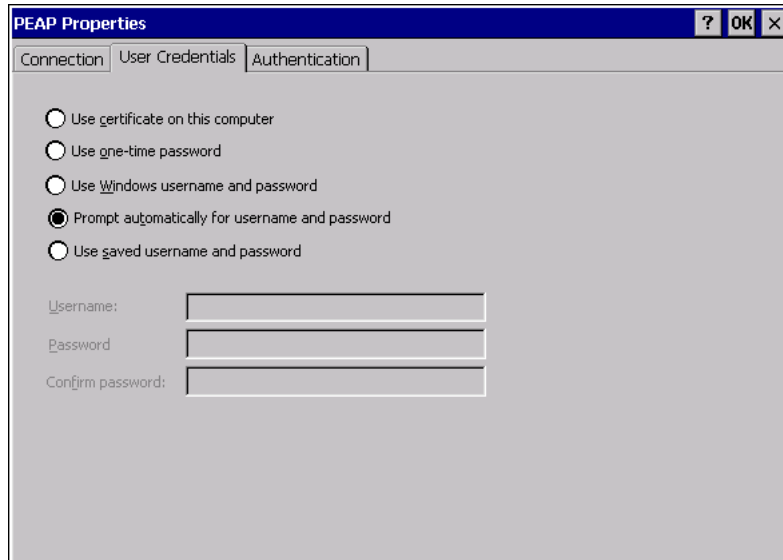
To configure for PEAP-TLS:

1. Set Security Type to WPA2-Enterprise or CCKM.
2. Set Encryption Type to AES.
3. Set network authentication method to Protected EAP (PEAP).
4. Tap the Settings button.
5. Select the Connection tab.



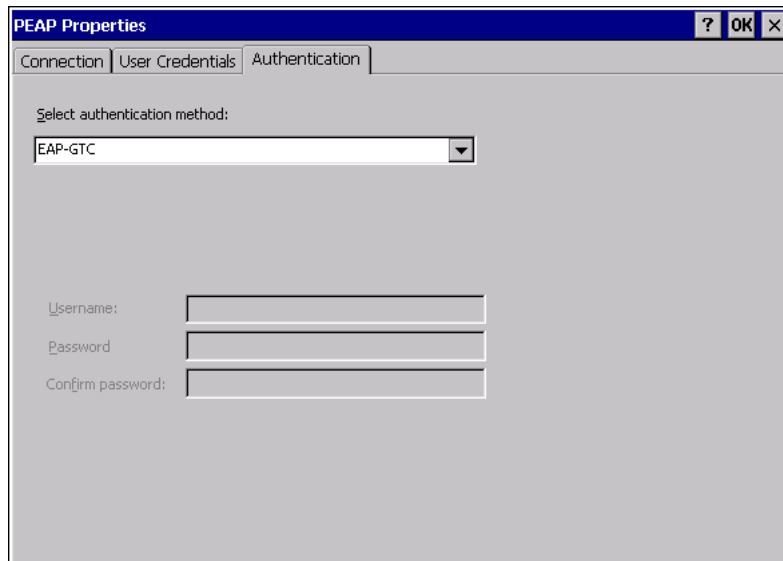
6. Select Validate server certificate.
7. Select the trusted root certificate from the listed certificates.

8. Select the User Credentials tab.



9. Select Prompt automatically for username and password.

10. Select the Authentication tab.



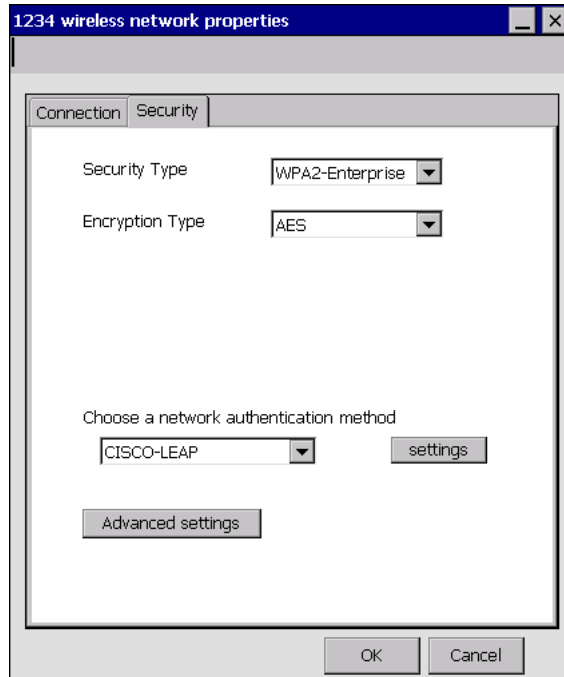
11. Select EAP-GTC as the authentication method.

12. Tap OK to close any open windows.

13. From the profile listing, make sure the desired profile is active.

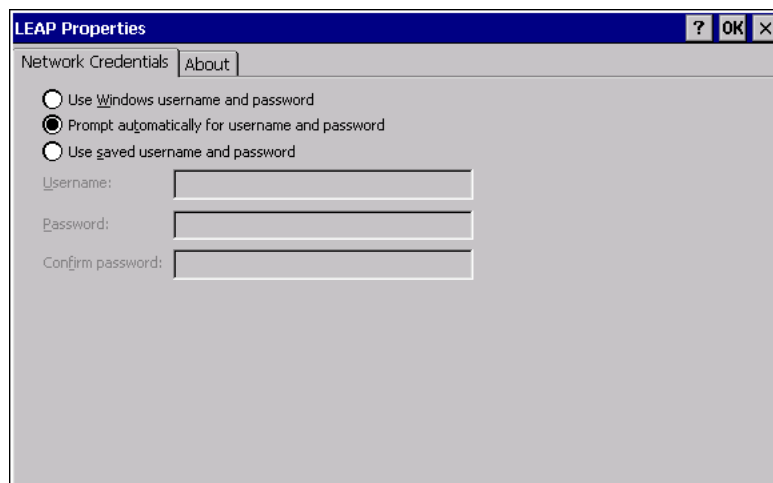
14. Verify the connection using [Status](#).

LEAP



To configure for Cisco LEAP:

1. Set Security Type to WPA2-Enterprise or CCKM.
2. Set Encryption Type to AES.
3. Set network authentication method to CISCO-LEAP.
4. Tap the Settings button.



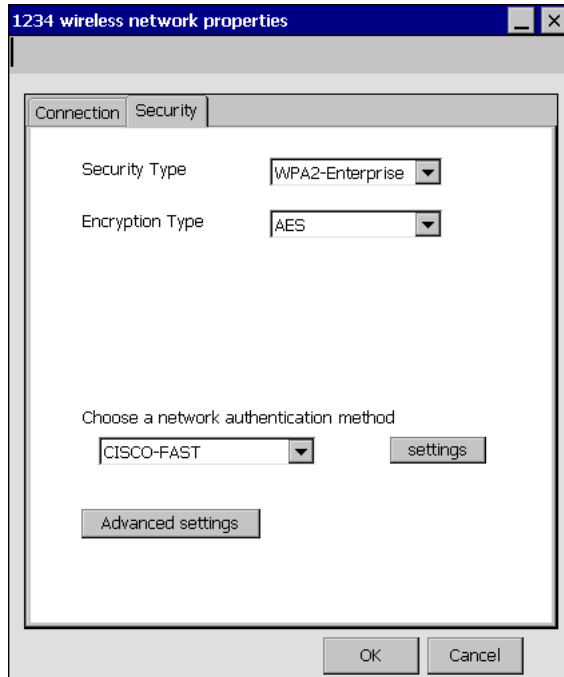
5. Select the desired credentials method of providing credentials. Prompt automatically for username and password is recommended.
6. If saved username and password is selected, enter the credentials now.
7. The About tab provides Cisco copyright information.
8. Tap OK to close all open windows.

9. From the profile listing, make sure the desired profile is active.
10. If prompt for username and password option was selected, enter the credentials when prompted.

Note: *If the credentials are not entered when the window first pops up, the credentials window can become hidden behind other windows.*

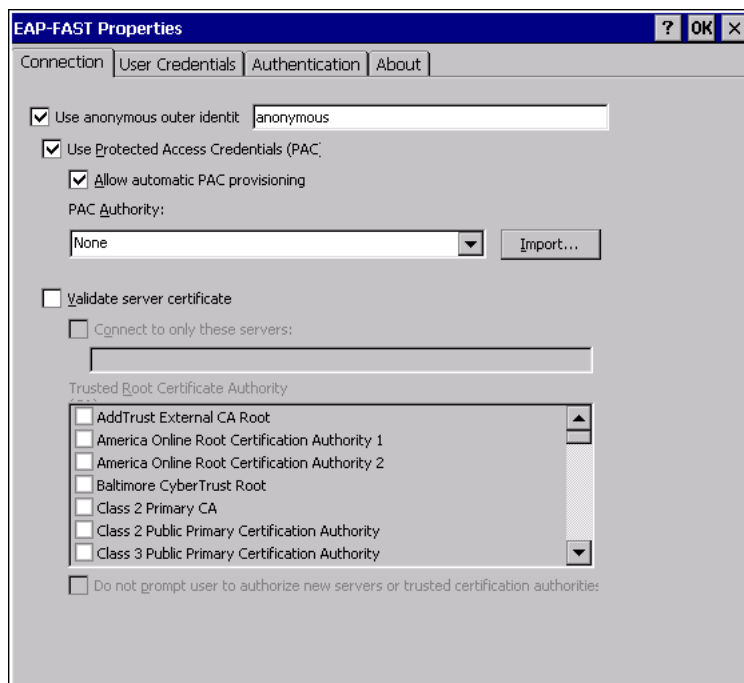
11. Verify the connection using [Status](#).

EAP-FAST PEAP

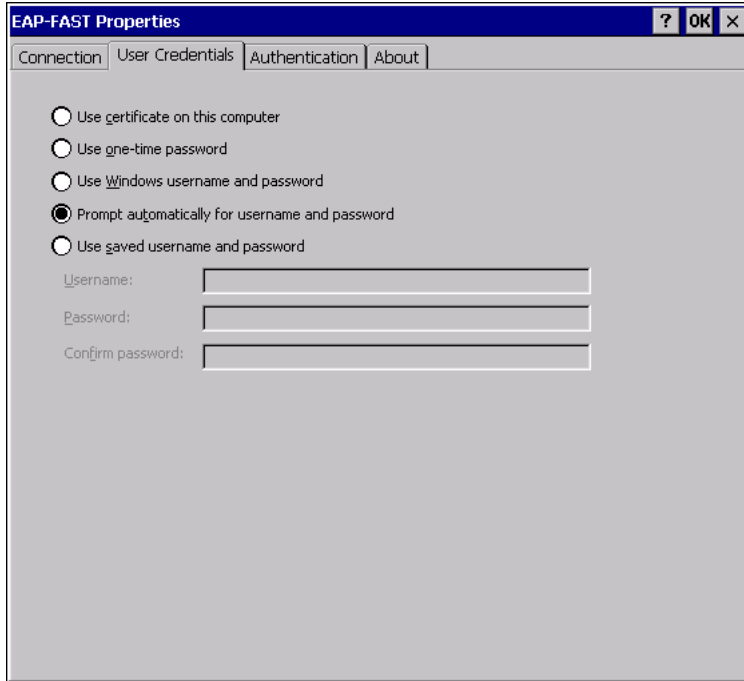


To configure for Cisco EAP-FAST PEAP:

1. Set Security Type to WPA2-Enterprise or CCKM.
2. Set Encryption Type to AES.
3. Set network authentication method to CISCO-FAST.
4. Tap the Settings button.



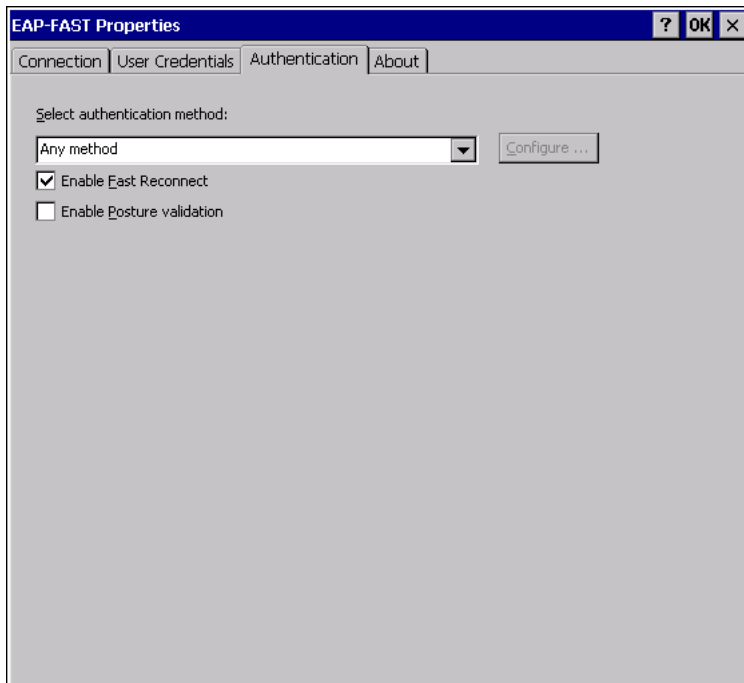
5. Select the User Credentials tab.



6. Select the desired credentials method of providing username and password. Prompt automatically for username and password is recommended.

7. If saved username and password is selected, enter the credentials now.

8. Tap the Authentication tab.



9. Select the desired authentication method. Any of the available options may be used.

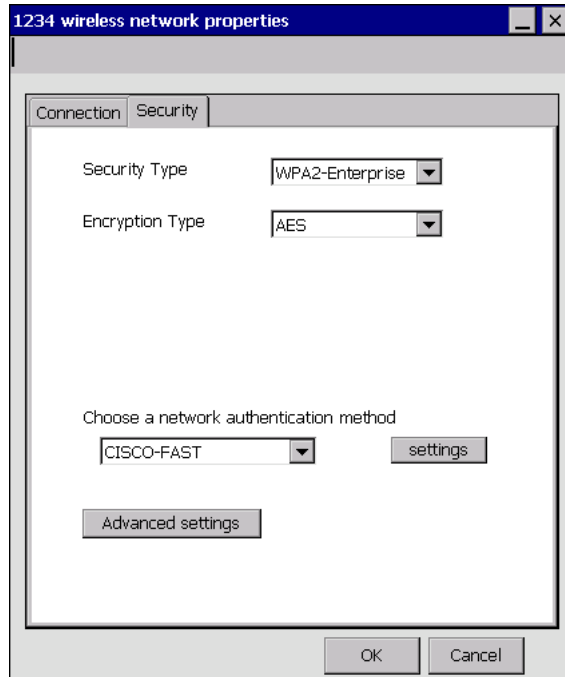
10. The About tab provides Cisco copyright information.

11. Tap OK to close all open windows.
12. From the profile listing, make sure the desired profile is active.
13. If prompt for username and password option was selected, enter the credentials when prompted.

Note: *If the credentials are not entered when the window first pops up, the credentials window can become hidden behind other windows.*

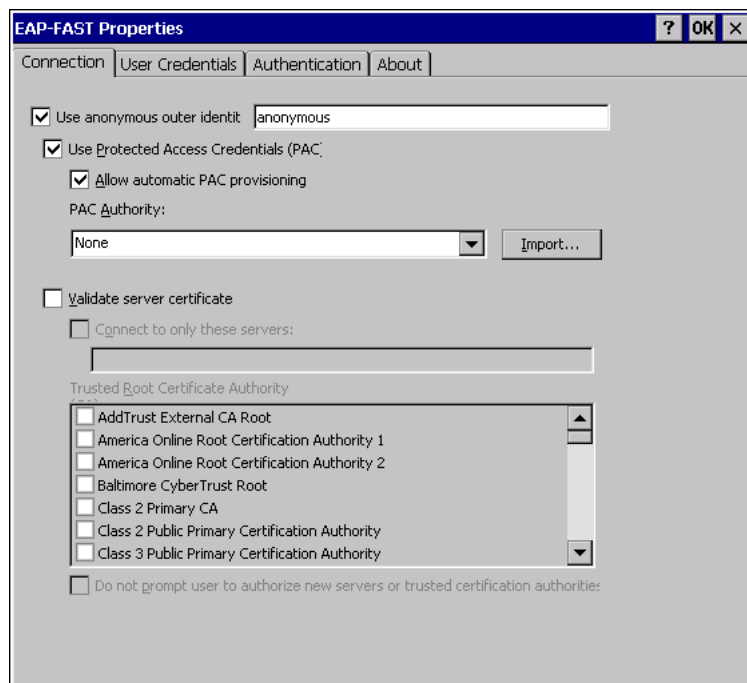
14. Verify the connection using [Status](#).

EAP-FAST TLS

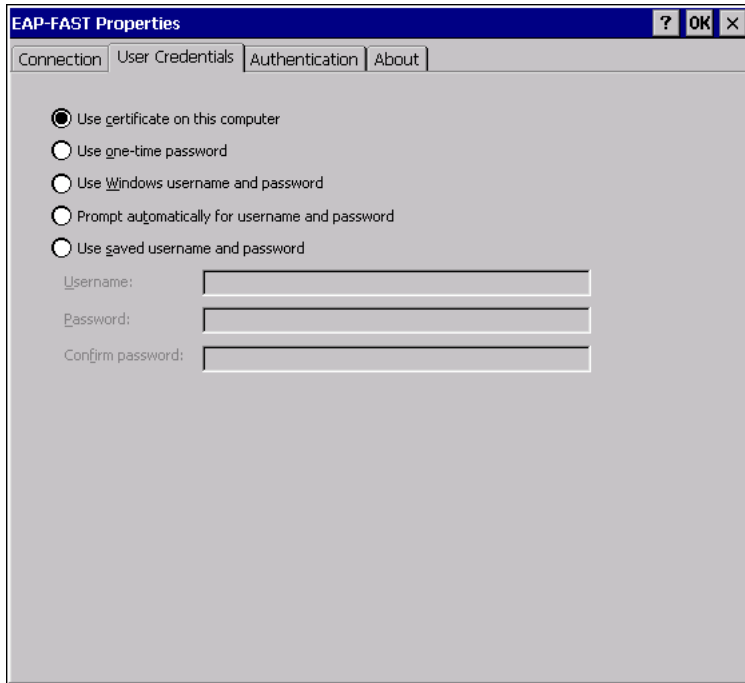


To configure for Cisco EAP-FAST TLS:

1. Set Security Type to WPA2-Enterprise or CCKM.
2. Set Encryption Type to AES.
3. Set network authentication method to Cisco:EAP-FAST.
4. Tap the Settings button.



5. Select the User Credentials tab.



6. Select Use certificate on this computer.

7. No entries are needed on the Authentication tab.

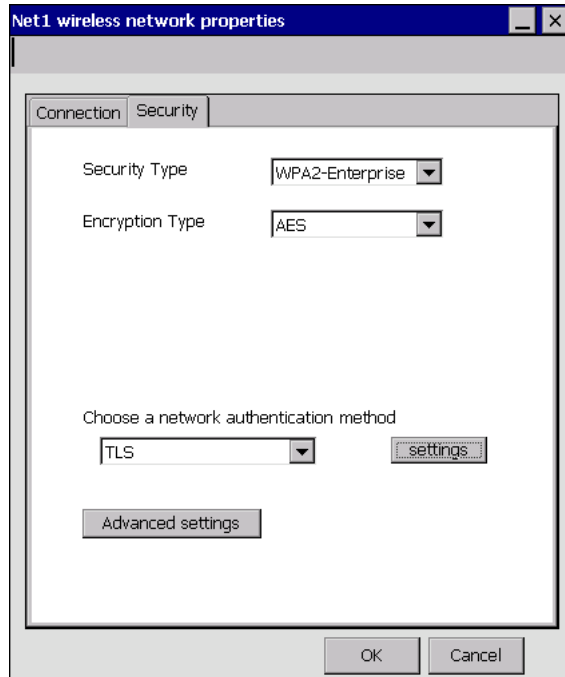
8. The About tab provides Cisco copyright information.

9. Tap OK to close all open windows.

10. From the profile listing, make sure the desired profile is active.

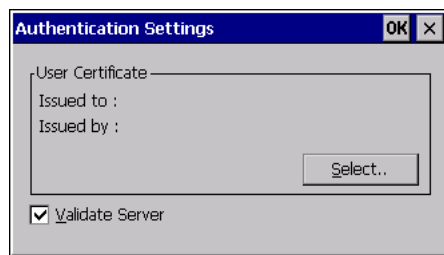
11. Verify the connection using [Status](#).

EAP-TLS



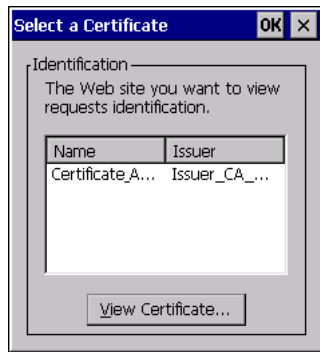
To configure for EAP-TLS:

1. Set Security Type to WPA2-Enterprise or CCKM.
2. Set Encryption Type to AES.
3. Set network authentication method to Microsoft Smart Card or other certificate.
4. Tap the Settings button.

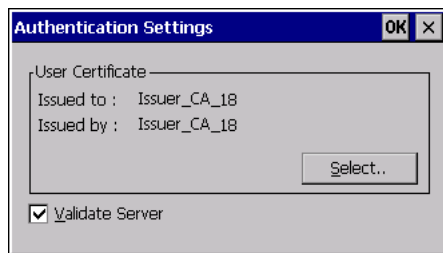


Note: If a user certificate has already been selected, the details would be populated on this screen.

5. Tap Select to select a user certificate on this computer.

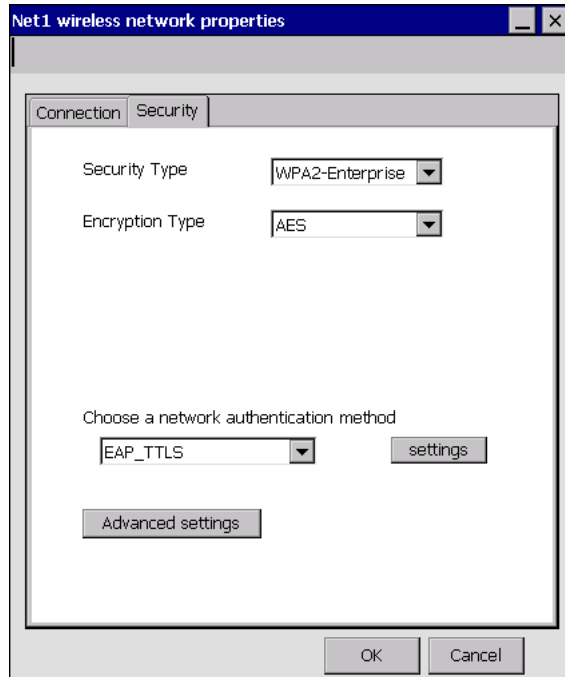


6. Select the certificate from the listed certificates.
7. Tap OK.
8. The selected certificate is displayed.



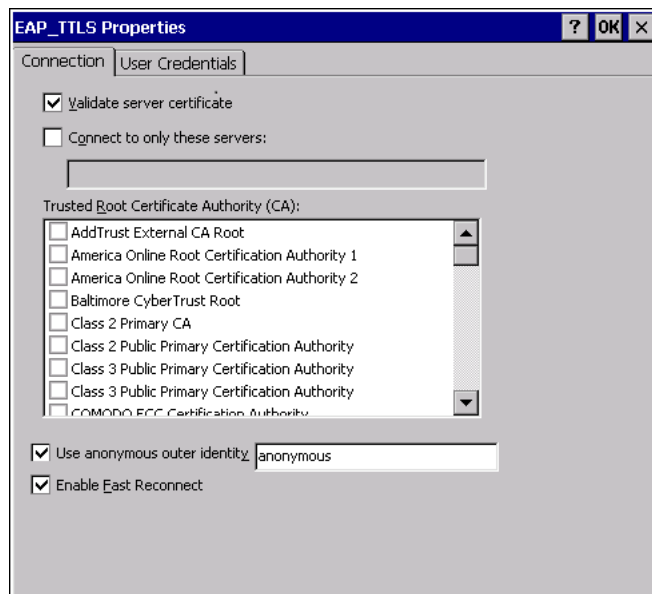
9. Tap OK to close any open windows.
10. From the profile listing, make sure the desired profile is active.
11. Verify the connection using [Status](#).

EAP-TTLS



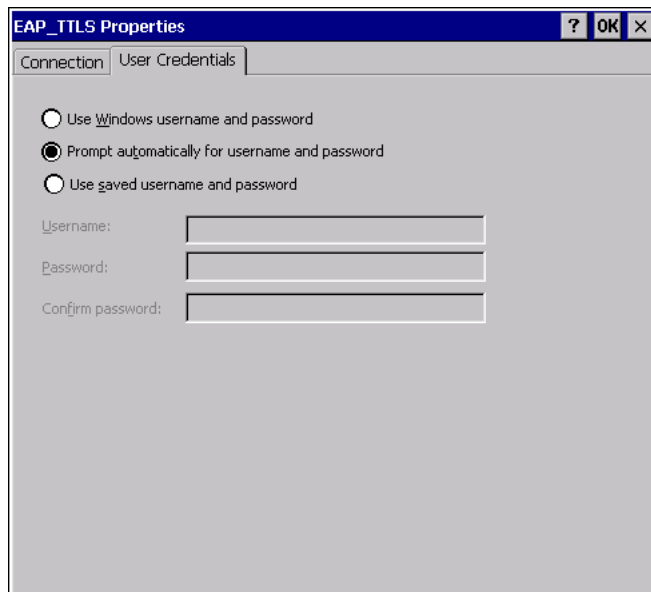
To configure for EAP-TTLS:

1. Set Security Type to WPA2-Enterprise or CCKM.
2. Set Encryption Type to AES.
3. Set network authentication method to EAP_TTLS.
4. Tap the Settings button.
5. Select the Connection tab.



6. Select Validate server certificate.

7. Select the trusted root certificate from the listed certificates.
8. Select the User Credentials tab.



9. Select the desired credentials method of providing username and password. Prompt automatically for username and password is recommended.
10. If saved username and password is selected, enter the credentials now.
11. Tap OK to close any open windows.
12. From the profile listing, make sure the desired profile is active.
13. If prompt for username and password option was selected, enter the credentials when prompted.

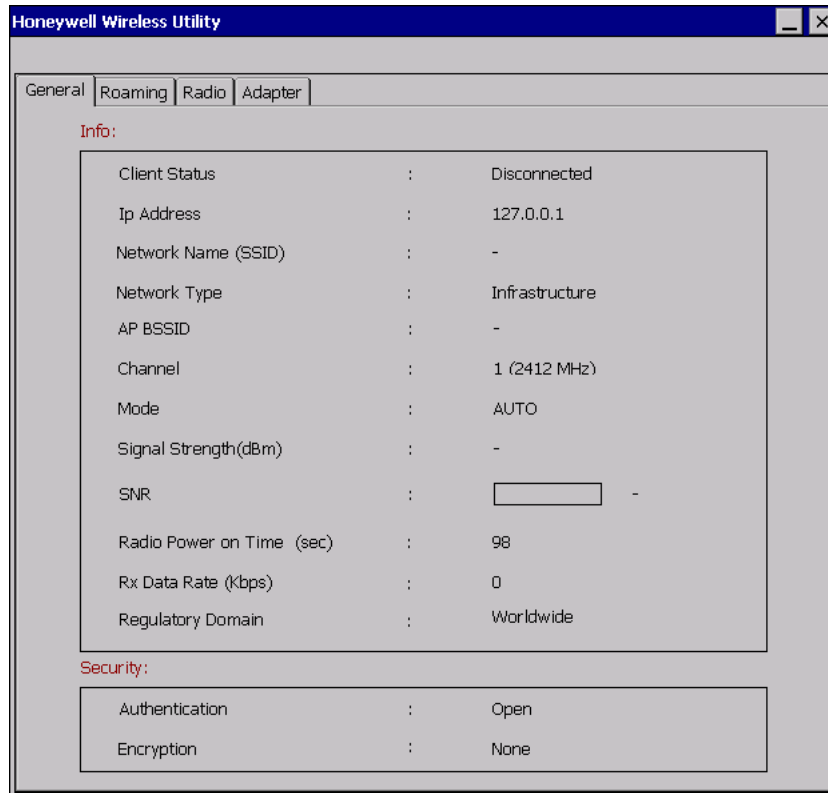
Note: *If the credentials are not entered when the window first pops up, the credentials window can become hidden behind other windows.*

14. Verify the connection using [Status](#).

Roam Management

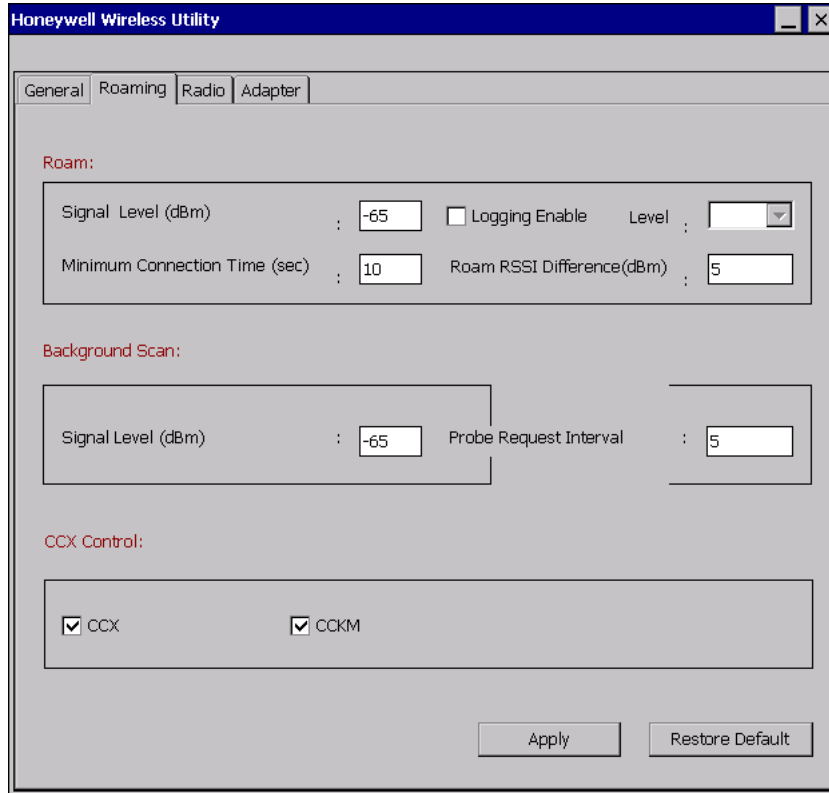
General

The general tab provides information on the current connection. There are no user entries on this screen.



Roaming

The Roaming tab is used to configure roaming behavior.



Roam	
Signal Level (dBm)	When the signal strength is below this level, the radio will attempt to roam. Default -65 dBm, range is -80 to -55.
Logging Enable	When checked, logging is enabled. Logging can be set to Critical (fewer messages) or All (more messages). Logging is disabled by default. Note: <i>Logging is set to disabled after any reboot to prevent log files for taking up disk space when not needed.</i>
Minimum Connection Time (sec)	The minimum connection time the radio stays connected to the current access point before roaming begins. Default 10 seconds, range is 5 to 25.
Roam RISSI Difference (dBm)	The minimum signal strength difference between APs before the radio roams. Default 5 dBm, range is 5 to 25.
Background Scan	
Signal Level (dBm)	The minimum signal strength an access point signal must have to be considered for roaming. Default -65 dBm, range is -80 to -55.
Probe Request Interval (sec)	The interval between roam probes. Default 5 seconds, range is 5 to 60.
CCX Control	

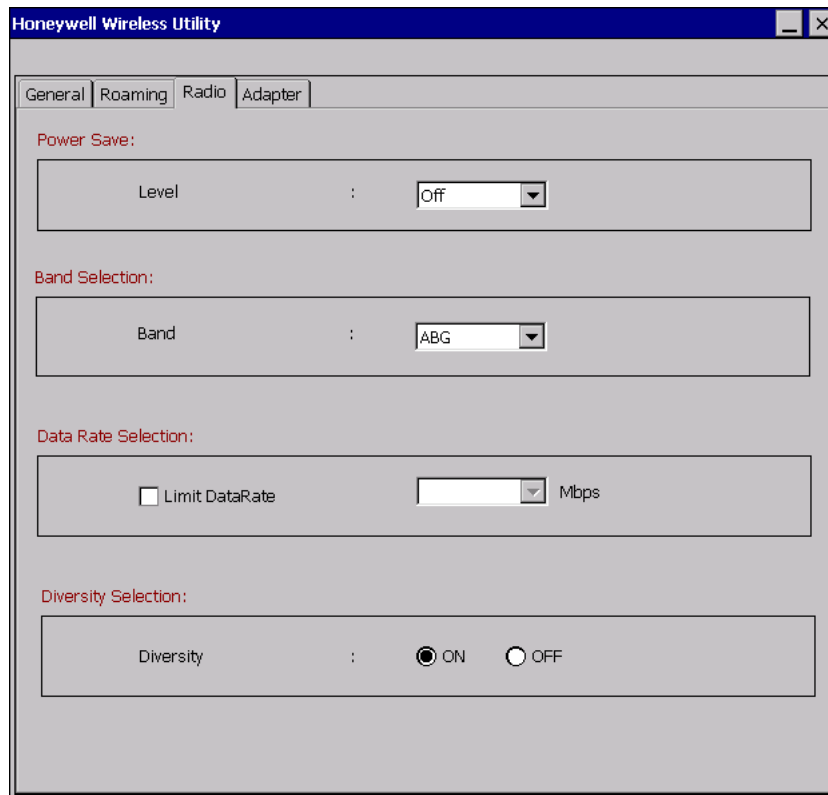
Note: For CCX to be enabled, two settings must be enabled:	
<ul style="list-style-type: none"> • CCX must be enabled (checked) on this screen. • Enable Atheros Connection Settings must be enabled (checked) on the Connection tab. <p>If both settings are not enabled, the WLAN radio does not identify itself as CCX V4 compatible when associating to an access point.</p>	
CCX	Use CCX (Cisco Client Extensions) for faster roaming. Default is enabled.
CCKM	Use CCKM (Cisco Centralized Key Management) for faster roaming. Default is enabled.

To save changes, tap Apply the button. Confirmation dialogs may be displayed.

To exit without saving changes, tap the X in the upper right of the window.

Tap restore default values, tap the Restore Default Values then tap Apply.

Radio

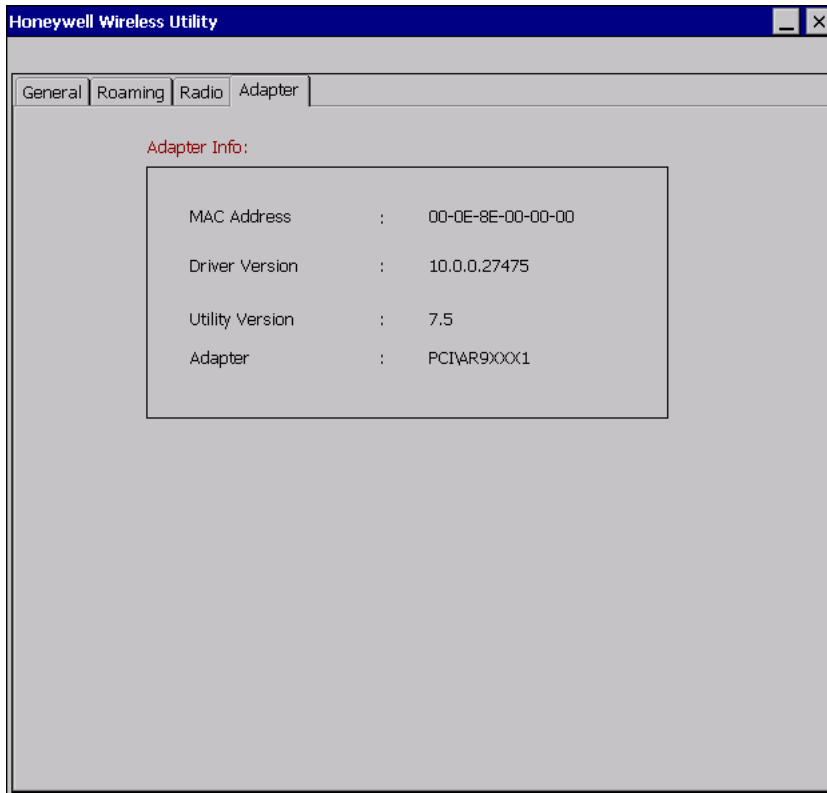


Power Save	Set the power save level. Options are Off (default) and Auto-PSM. Note: Power save level is reset to the default (Off) after reboot.
Band Selection	Select the bands to use. Options are: A, BG, G, ABG (default).
DataRate Selection	To limit data rates, check the Limit DataRate checkbox. If checked, select the desired rate (MCS0 to MCS15). MCS0 (Modulation and Coding Scheme) 0 is slowest, MCS15 is fastest but subject to more errors. Default is disabled. Note: DataRate selection is reset to default (Disabled) after reboot.

Diversity Selection	By default, diversity is on.
---------------------	------------------------------

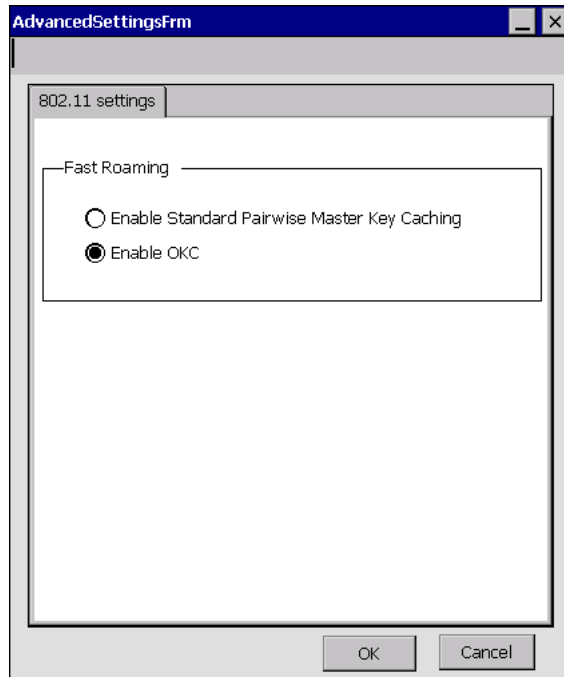
Adapter

The adapter tab provides information on the radio card. There are no user entries on this screen.



Advanced Settings

802.11 Settings



Determines the method used for fast roaming:

- Enable Standard Pairwise Master key caching - When standard Pairwise Master Key (PMK) is enabled, authentication can be skipped if the client has already authenticated to the access point previously. A connection to a new access point uses the 802.11x authentication process while a reconnect to the access point can skip the authentication.
- Enable OKC- Opportunistic Key Caching (OKC) allows a client to skip 802.11x authentication when roaming to an access point under a controller based infrastructure. After the client authenticates with one access point, it can roam to others under the same controller by handshaking rather than authentication.

Certificates

Note: Please refer to the Security Primer to prepare the Authentication Server and Access Point for communication.

Note: It is important that all dates are correct on the Thor VM3 and host computers when using any type of certificate. Certificates are date sensitive and if the date is not correct authentication will fail.

Quick Start

Root Certificates are necessary for EAP-TLS, PEAP/GTC and PEAP/MSCHAP.

1. [Generate a Root CA Certificate](#) and download it to a PC.
2. Connect the Thor VM3 to the desktop PC using ActiveSync and copy the certificate to the Thor VM3 \System folder or use a USB thumb drive to transfer the certificate file.
3. [Install a Root CA Certificate](#).

User Certificates are necessary for EAP-TLS.

1. [Generate a User Certificate](#) and private key file and download them to a PC.
2. Connect the Thor VM3 to the desktop PC using ActiveSync and copy the certificate and private key file to the Thor VM3 \System folder.
3. [Install a User Certificate](#) and the private key file.
4. After installation, perform a Suspend/Resume.
5. [Verify Installation](#).

Generate a Root CA Certificate

Note: It is important that all dates are correct on the Thor VM3 and host computers when using any type of certificate. Certificates are date sensitive and if the date is not correct authentication will fail.

The easiest way to get the root CA certificate is to use a browser on a PC to navigate to the Certificate Authority. To request the root CA certificate, open a browser to

`http://<CA IP address>/certsrv.`

Sign into the CA with any valid username and password.



Welcome

Use this Web site to request a certificate for your Web browser, e-mail client, or other program. By using a certificate, you can verify your identity to people you communicate with over the Web, sign and encrypt messages, and, depending upon the type of certificate you request, perform other security tasks.

You can also use this Web site to download a certificate authority (CA) certificate, certificate chain, or certificate revocation list (CRL), or to view the status of a pending request.

For more information about Certificate Services, see [Certificate Services Documentation](#).

Select a task:

- [Request a certificate](#)
 - [View the status of a pending certificate request](#)
 - [Download a CA certificate, certificate chain, or CRL](#)
-

Click the Download a CA certificate, certificate chain or CRL link.

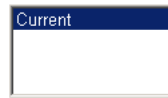
Make sure the correct root CA certificate is selected in the list box.

Download a CA Certificate, Certificate Chain, or CRL

To trust certificates issued from this certification authority, [install this CA certificate chain](#).

To download a CA certificate, certificate chain, or CRL, select the certificate and encoding method.

CA certificate:

A dropdown menu with a blue header containing the text 'Current'. The menu is currently closed, showing only the header.

Encoding method:

- DER
- Base 64

[Download CA certificate](#)

[Download CA certificate chain](#)

[Download latest base CRL](#)

[Download latest delta CRL](#)

Click the DER button.

To download the CA certificate, click on the Download CA certificate link.



Click the Save button and save the certificate. Make sure to keep track of the name and location of the certificate.

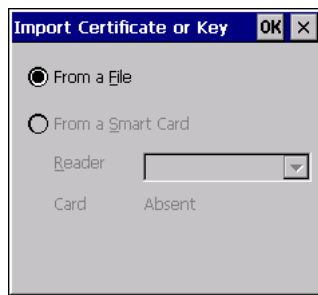
Install the certificate on the Thor VM3.

Install a Root CA Certificate

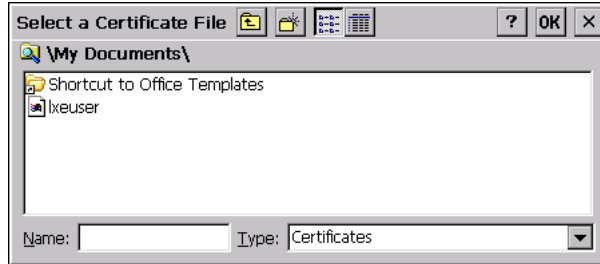
Copy the certificate file to the Thor VM3. Import the certificate by navigating to Start > Control Panel > Certificates.



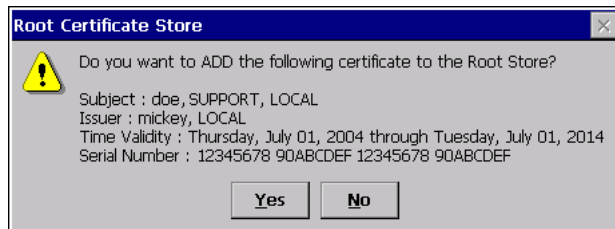
Tap the Import button.



Make sure From a File is selected and tap OK.



Using the explorer buttons, browse to the location where you copied the certificate, select the certificate desired and tap OK.



Tap Yes to import the certificate.

Once the certificate is installed, return to the proper authentication section, earlier in this manual.

Generate a User Certificate

The easiest way to get the user certificate is to use a browser on a PC to navigate to the Certificate Authority. To request the user certificate, open a browser to

<http://<CA IP address>/certsrv>.

Sign into the CA with the username and password of the person who will be logging into the mobile device.



This process saves a user certificate and a separate private key file. Windows Embedded Compact equipped devices such as the Thor VM3 require the private key to be saved as a separate file rather than including the private key in the user certificate.

Microsoft Certificate Services [Home](#)

Welcome

Use this Web site to request a certificate for your Web browser, e-mail client, or other program. By using a certificate, you can verify your identity to people you communicate with over the Web, sign and encrypt messages, and, depending upon the type of certificate you request, perform other security tasks.

You can also use this Web site to download a certificate authority (CA) certificate, certificate chain, or certificate revocation list (CRL), or to view the status of a pending request.

For more information about Certificate Services, see [Certificate Services Documentation](#).

Select a task:

- [Request a certificate](#)
- [View the status of a pending certificate request](#)
- [Download a CA certificate, certificate chain, or CRL](#)

Click the Request a certificate link.

Microsoft Certificate Services [Home](#)

Request a Certificate

Select the certificate type:

- [User Certificate](#)

Or, submit an [advanced certificate request](#).

Click on the advanced certificate request link.

Microsoft Certificate Services [Home](#)

Advanced Certificate Request

The policy of the CA determines the types of certificates you can request. Click one of the following options to:

- [Create and submit a request to this CA.](#)
- [Submit a certificate request by using a base-64-encoded CMC or : PKCS #10 file, or submit a renewal request by using a base-64-encoded PKCS #7 file.](#)
- [Request a certificate for a smart card on behalf of another user by using the smart card certificate enrollment station.](#)

Note: You must have an enrollment agent certificate to submit a request on of another user.

Click on the Create and submit a request to this CA link.

Microsoft Certificate Services

Advanced Certificate Request

Certificate Template:

User

Key Options:

Create new key set Use existing key set

CSP: Microsoft Enhanced Cryptographic Provider v1.0

Key Usage: Exchange

Key Size: 1024 Min: 384 Max: 16384 (common key sizes: [512](#) [1024](#) [2048](#) [4096](#) [8192](#) [16384](#))

Automatic key container name User specified key container name

Mark keys as exportable

Export keys to file

Full path name: user1key.pvk

Enable strong private key protection

Store certificate in the local computer certificate store
Stores the certificate in the local computer store instead of in the user's certificate store. Does not install the root CA's certificate. You must be an administrator to generate or use a key in the local machine store.

Additional Options:

Request Format: CMC PKCS10

Hash Algorithm: SHA-1
Only used to sign request.

Save request to a file

Attributes:

Friendly Name:

For the Certificate Template, select User.

Check the Mark keys as exportable and the Export keys to file checkboxes.

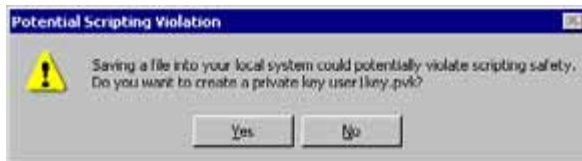
Type the full path on the local PC where the private key is to be copied. Also specify the private key filename.



Be sure to note the name used for the private key file, for example AAAUSER.PVK. The certificate file created later in this process must be given the same name, for example, AAAUSER.CER.

DO NOT check to use strong private key protection.

Make any other desired changes and click the Submit button.

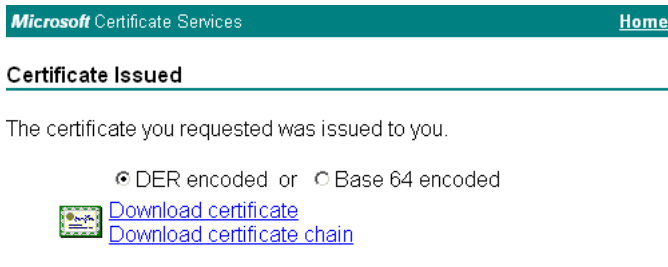


If any script notifications occur, click the “Yes button to continue the certificate request.



When prompted for the private key password:

- Click None if you do not wish to use a password, or
- Enter and confirm your desired password then click OK.



Click the Download certificate link.



Click Save to download and store the user certificate to the PC. Make sure to keep track of the name and location of the certificate. The private key file is also downloaded and saved during this process.

Be sure use the same name for the certificate file as was used for the private key file. For example, if the private key was saved as AAAUSER.PVK then the certificate file created must be given the same name, for example, AAAUSER.CER.

Install the user certificate.

Install a User Certificate

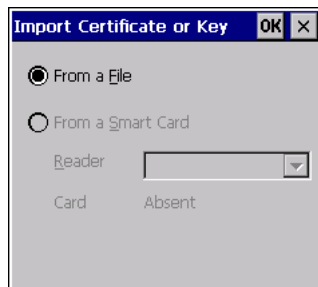
Copy the certificate and private key files to the Thor VM3. Import the certificate by navigating to Start > Control Panel > Certificates.



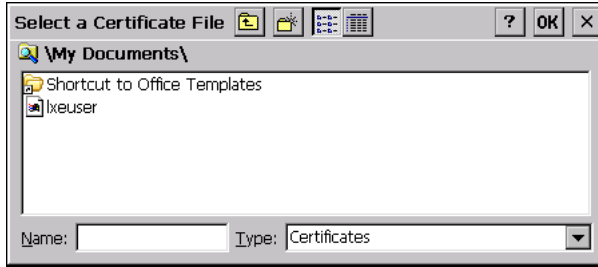
Select My Certificates from the pull-down list.



Tap the Import button.

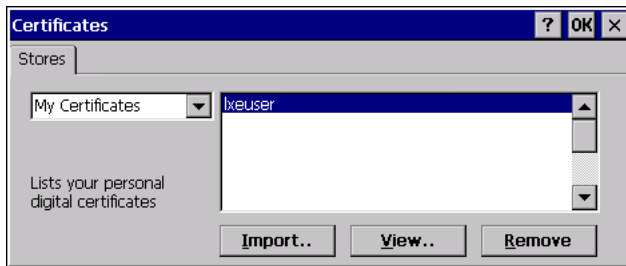


Make sure From a File is selected and tap OK.



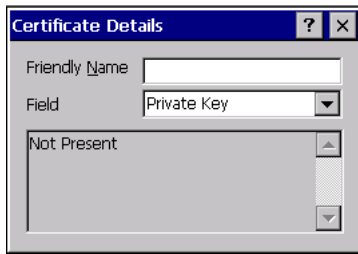
Using the explorer buttons, browse to the location where you copied the certificate, select the certificate desired and tap OK.

The certificate is now shown in the list.



With the certificate you just imported highlighted, tap View.

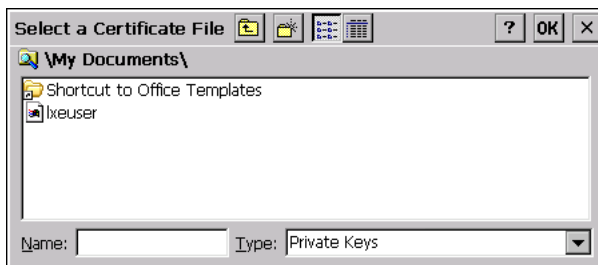
From the Field pull-down menu, select Private Key.



- If the private key is present, the process is complete.
- If the private key is not present, import the private key.

To import the private key, tap OK to return to the Certificates screen.

Tap import.



Using the explorer buttons, browse to the location where you copied the private key file, change the Type pull-down list to Private Keys, select the certificate desired and tap OK. Enter the password for the certificate if appropriate.

Verify Installation

Tap on View to see the certificate details again.



The private key should now say present. If it does not, there is a problem. Possible items to check:

- Make sure the certificate was generated with a separate private key file, as shown earlier in this section. If the certificate was not generated with a separate private key file, generate a new certificate and follow the import process again.
- Make sure the certificate and private key file have the same name, for example AAAuser.cer for the certificate and AAAuser.pvk for the private key file. If the file names are not the same, rename the private key file and import it again.

VM3 WWAN Connection Manager

Access the VM3 Connection Manager from the icon in the system tray. Double tap the Connection Manager icon (or right-click the icon and select Configuration Panel). The Connection Manager icon looks like this:



VM3 Connection Manager icon when there is no active WLAN or WWAN connection. The icon may be flashing in the system tray when there is no connection.



WVM3 Connection Manager icon when there is an active WLAN connection.



VM3 connection manager icon when a WWAN connection is active. The icon indicates which SIM card is used (1 or 2) and the strength of the connection (1 to 4 bars).

Use the VM3 Connection Manager to:

- Configure WWAN connections
- Configure hyper-roaming between WWAN carriers or between WWAN and WLAN..



Hyper-Roaming Notes:

- The Connection Manager roams from WLAN to WWAN when the WLAN signal is weak enough to allow the roaming. Due to the fact that WWAN signals are present in most areas, it is unlikely the Connection Manager will roam back to a WLAN connection automatically. User intervention may be required to switch back to WLAN.
- Roaming to or between WWAN carriers is different than roaming between WLAN access points. In order for WWAN to roam, the Connection Manager must first disconnect from the old WWAN carrier then establish a connection to the new WWAN carrier.
- When hyper-roaming (either between WWAN carriers or between WLAN/WWAN) the network connection is temporarily lost during the switching process. When switching to or between WWAN carriers, the connection manager must load carrier firmware and this can take several minutes.

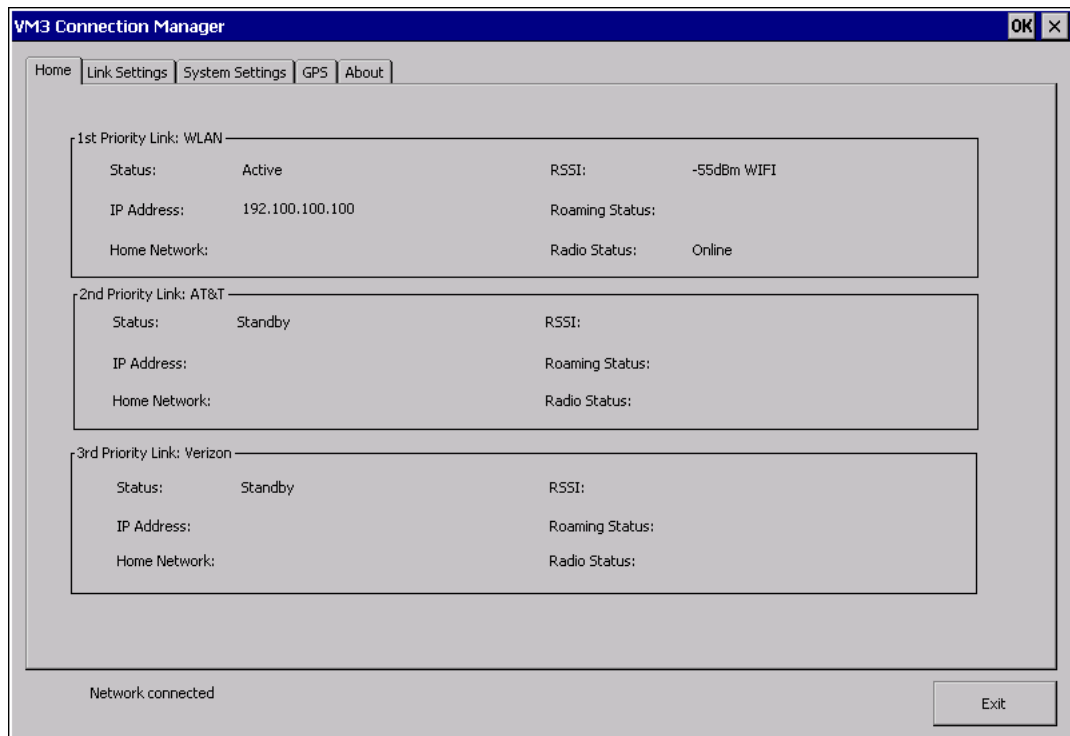


Connection troubleshooting:

- If there is a connection issue, the first step in troubleshooting is to verify the APN on the [Connection Type](#) tab.

Home

The Home tab lists the available connections and information on these connections. The order of the connections listed are specified on the Link Settings tab.



Each configured connection (or link) is identified by name, either WLAN (for a WLAN connection) or the name of the carrier (for a WWAN connection). If a connection is not configured, there is no name after the link and the status field is empty.

The active connection displays the IP address and signal strength (RSSI). Inactive connections show the status as Standby.

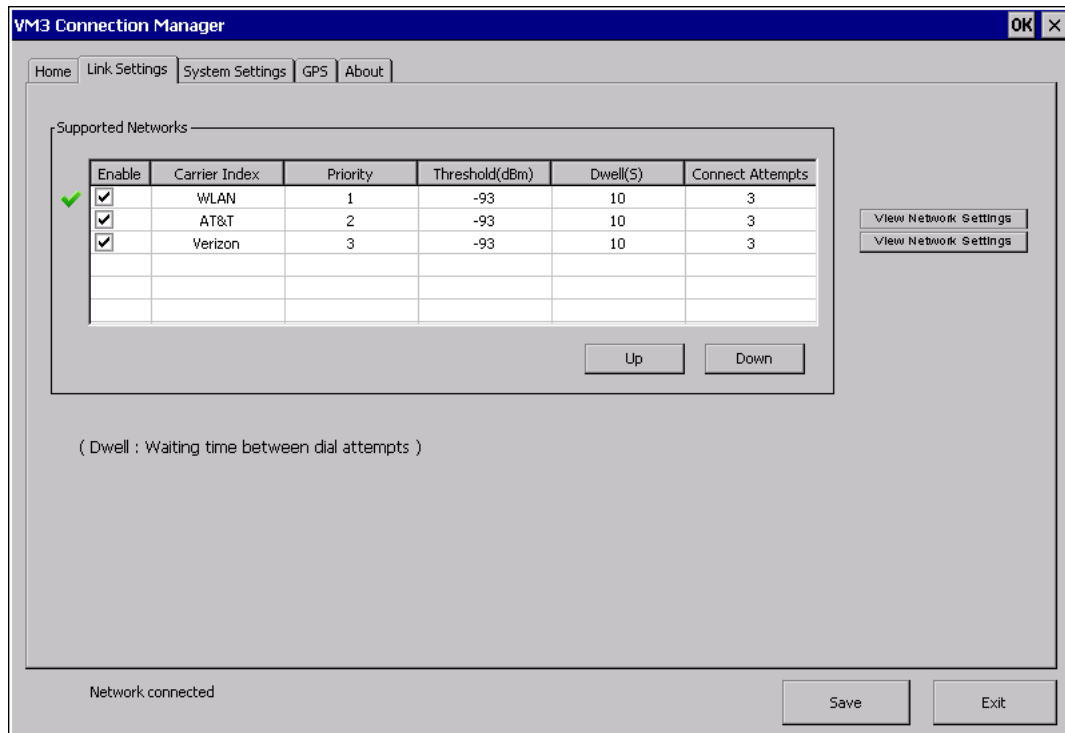
If a WWAN connection is active, the roaming status (Home or Roam) is displayed.

Link Settings

The available network connections are shown on this tab:

The WLAN network can be enabled or disabled from this tab, however configuration settings for the 802.11 a/b/g/n radio are set with the [WLAN Wireless Configuration Utility \(WCU\)](#).

The WWAN networks, if any, are shown on this page. A WWAN network is only displayed if a SIM card has been installed for that network. The Thor VM3 supports two SIM cards. See [Install SIM Card\(s\)](#) for SIM card installation instructions. A WWAN network can be enabled or disabled from this screen, however the connection is configured by tapping the applicable Network Settings button.



To change the order (Priority) of the networks:

1. Select the desired network. When selected, the network has a green check mark to the left.
2. Tap the Up or Down button to move the network in the desired direction.
3. Tap the Save button after the order is set.

To change the other options (Enable, Threshold, Dwell, Connect Attempts):

1. To enable or disable a carrier, tap the checkbox to the left of the carrier name. When checked, the carrier is enabled.
2. For other parameters, double tap the cell containing the value that is to be changed. The value in the cell can now be edited.
3. Enter the desired value.

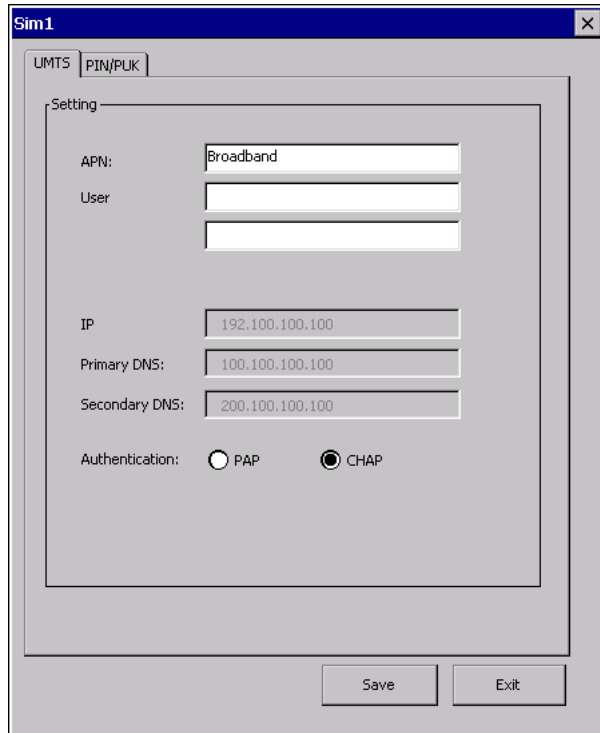
4. Tap anywhere else on the screen to exit the editing mode.
5. The values that can be changed are:
 - Threshold - The signal strength (in dBm) before roaming can occur to this connection. The default is -93 dBm.
 - Dwell - The length of time (in seconds) to wait before attempting the connection. The default is 10 seconds.
 - Connect Attempts - The number of times this connection is tried. If there is no successful connection after this many tries, the next connection is tried.

To configure a WWAN network, tap the View Network Settings button. To configure the WLAN connection use the [WLAN Wireless Configuration Utility \(WCU\)](#).

Connection Type

Use this tab to configure the connection parameters. The tab is identified by the type of connection, i.e.: UMTS, LTE, UDMA, etc. The label on this tab corresponds to the Technology field on the [About](#) tab.

Note that the SIM card being configured (Sim1 or Sim2) is identified at the top of this tab.



The screenshot shows a window titled "Sim1" with a close button in the top right corner. Inside the window, there are two tabs: "UMTS" (selected) and "PIN/PUK". Below the tabs is a "Setting" section containing several input fields and radio buttons. The fields are: APN (containing "Broadband"), User (empty), IP (containing "192.100.100.100"), Primary DNS (containing "100.100.100.100"), and Secondary DNS (containing "200.100.100.100"). Below these fields are two radio buttons for "Authentication": "PAP" (unselected) and "CHAP" (selected). At the bottom of the window are two buttons: "Save" and "Exit".

If the WWAN radio fails to connect, please check that the correct APN is entered. This entry can be verified by contacting the WWAN carrier.

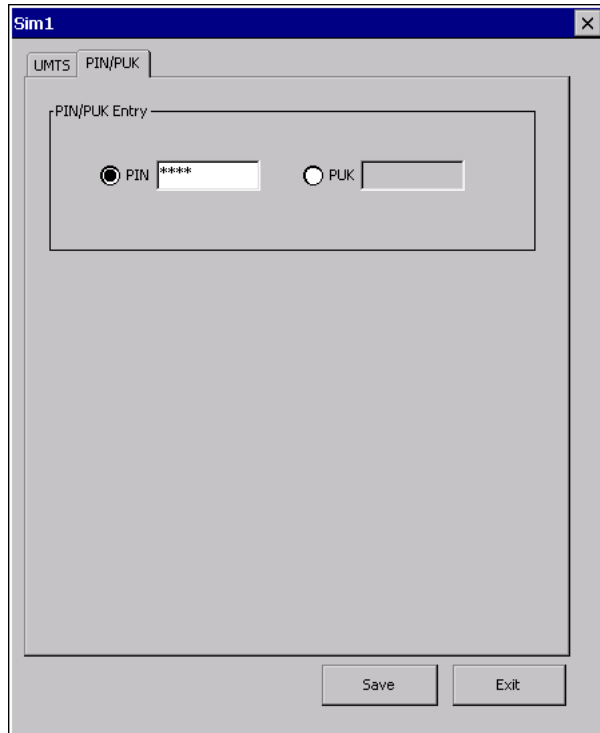


An APN mismatch may generate an error message, however this is not always the case. The first step in diagnosing a connection error should be to verify the APN.

After all entries are completed, tap the Save button.

PIN/PUK

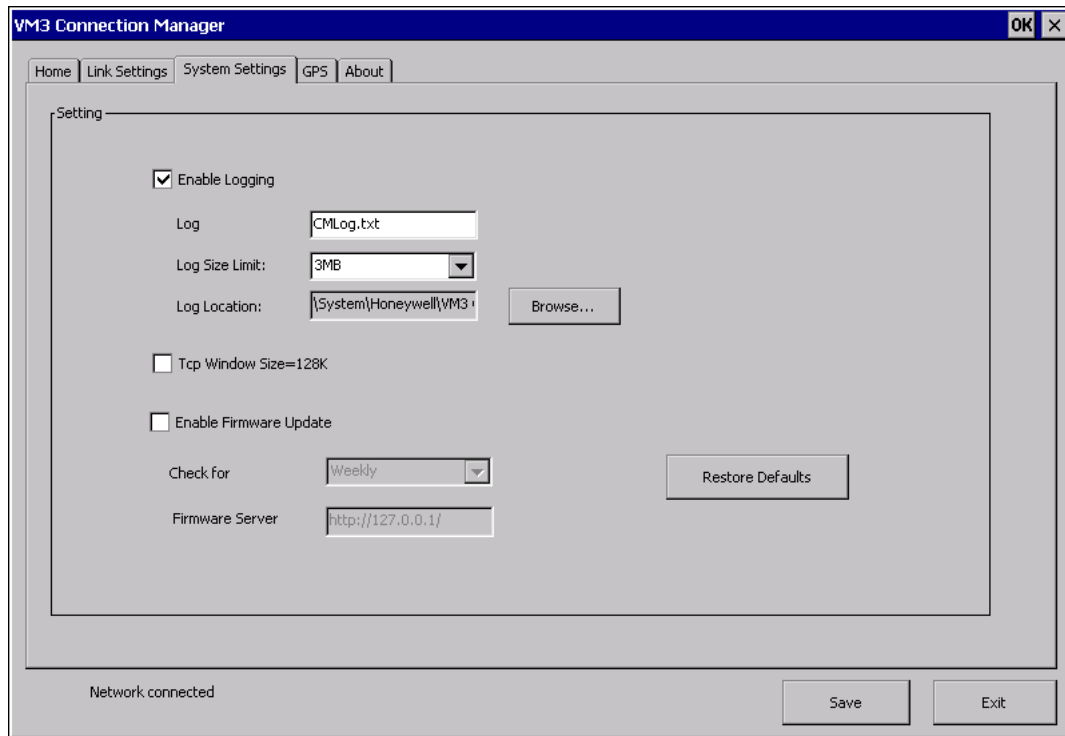
Next select the PIN/PUK tab. Note that the SIM card being configured (Sim1 or Sim2) is identified at the top of this tab.



Enter the PIN or PUK and tap Save then tap Exit to return to the Connection Manager.

System Settings

Use this screen to configure WWAN settings.



Enable Logging

Check to enable logging. Specify the maximum file size and the location for the log file. By default logging is disabled.

TcpWindow Size=128k

Check to set the TCP window size to 128k. By default this options is disabled.

Enable On-screen Connection Icon

Check to enable an on-screen connection icon. The icon is displayed in the lower right corner of the screen, above the date/time.



Connected



Not connected

This icon is in addition to the connection icon in the system tray. By default the on-screen icon is disabled.

Enable Firmware Update

The WWAN card supports firmware update over the air (Firmware Over The Air, or FOTA). By default, FOTA is disabled. See [Using FOTA](#)

Restore Defaults

Use this option to return all Connection Manager settings to the default value.

Using FOTA

Honeywell recommends distributing firmware via a WLAN connection rather than the WWAN connection. This requires an HTTP server which can be hosted on the Internet or the same Intranet (i.e.: the same network domain) as the Thor VM3. Honeywell tested FOTA using:

- Uniform Server: <https://sourceforge.net/projects/miniserver/>
- IIS: Microsoft Internet Information Services, Windows 2012 server

To use FOTA, the following steps must be completed before initial use:

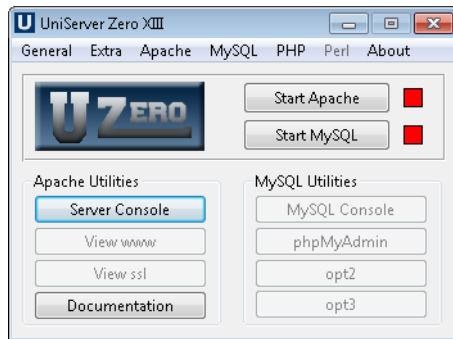
- [Configure HTTP Server](#)
- [Load Firmware Updates](#)
- [Configure the Thor VM3](#)

For subsequent updates, it is only necessary to [Load Firmware Updates](#).

Configure HTTP Server

The instructions below are for Uniform Server (UniServer). Setup information for IIS server is widely available on line. Follow the same folder setup as in step 4 below for IIS.

1. After installing, browse to the installation folder and run the server by double-clicking UniController.exe.
2. Click the Start Apache button. The indicator changes from red to green when the server is running. The button label also changes to Stop Apache.

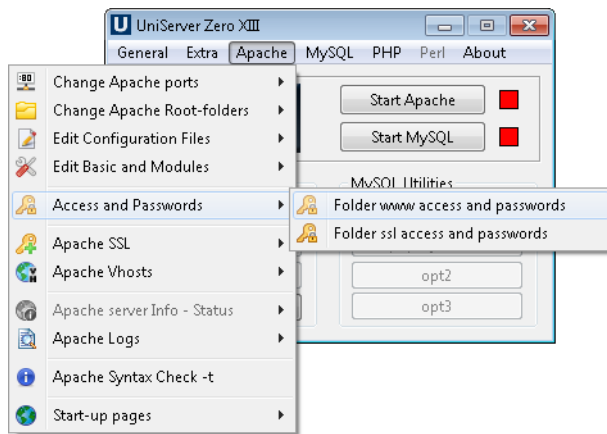


3. Display the test page by clicking the View www button or typing `http://localhost` into a web browser.
4. Create the folder structure on the web server:
<Server URL>/<wwan>/<Carrier Number>/<Version>.
Assuming `initroot` is root folder for the HTTP server, create a `wwan` folder underneath `initroot`. Then create folders under `wwan` numbered 0-15 to represent each carrier number. The structure is shown below. As firmware updates are received, create version folders under the appropriate carrier number. Notice the version folders under the <3> folder in this example.

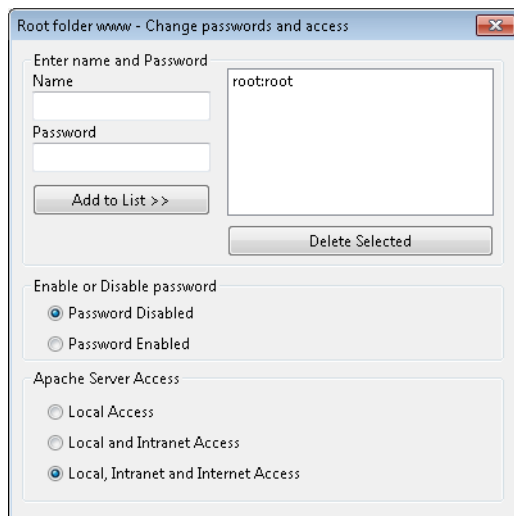
```
<initroot>
  <wwan>
    <0>
```


- <1>
- <2>
- <3>
- 1.0.0
- 1.0.1
- 1.0.2
- <4>
- <5>
- ...
- <14>
- <15>

5. Click on the Apache tab and select Access and Passwords > Folder www access and passwords.



6. Select Password Disabled and Local, Intranet and Internet Access.



7. Verify server setup:

- Ping the sever from the Thor VM3 to verify connectivity between the devices.

- Open the web browser on the Thor VM3 and verify the URL of the server can be accessed.

Load Firmware Updates

The firmware update is provided by Honeywell customer support. The update consists of a version string and a zip file. The version string is three numbers separated by periods, i.e.: 1.0.0 or 3.1.12.

Top load the firmware files:

1. Create a subfolder under the applicable carrier number that matches the version string. For example, if update 1.0.3 is received for carrier number 6, the folder would be:
<Server URL>/<wwan>/<6>/<1.0.3>
2. Unzip the firmware file. The firmware update consists of three files:
 - carrier_pri.nvu
 - imageInfo.xml
 - spkg_sblz.cwe
3. Copy the three files into the update folder created above.

Configure the Thor VM3

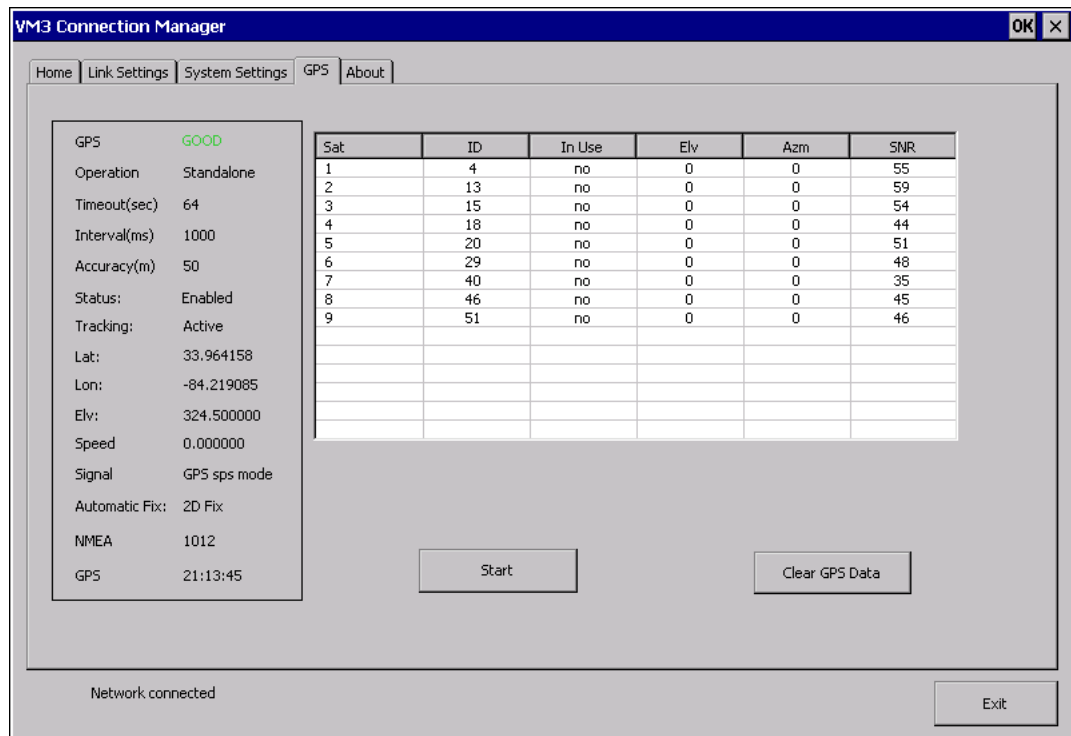
Repeat these steps for each Thor VM3 that will be using FOTA. Once configured, the Thor VM3 continues to check for firmware updates at the specified interval.

On the System Settings tab of the Connection Manager:

1. Check the Enable Firmware Update checkbox.
2. Select the desired frequency (daily or weekly) to Check for Updates.
3. Specify the Firmware Storage Path. This path includes the address of the web server but does not include the carrier number or version folders created. The carrier folder and update folder are automatically detected by the update utility. For example, if the web server is hosted at http://127.0.0.1, the path is entered as http://127.0.0.1/wwan/
Important - the trailing / must be included after wwan.

GPS

This screen displays GPS data. A WWAN connection is not required for the GPS data, however an antenna must be attached to the GPS port.

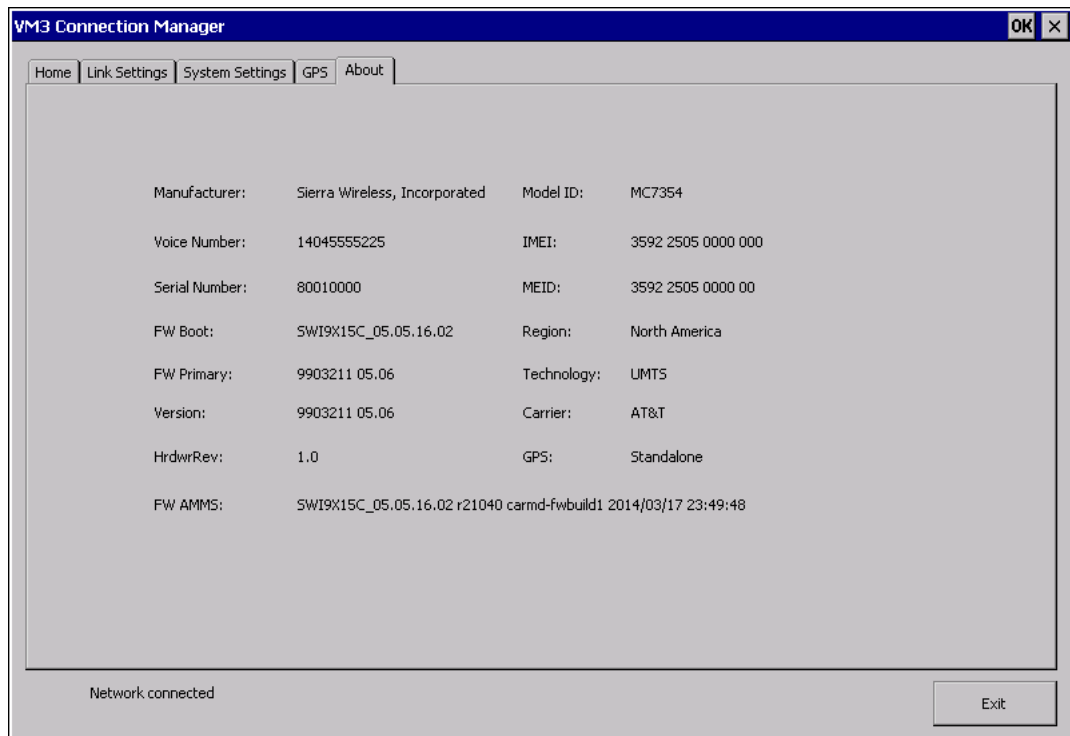


Tap the Start button to begin receiving GPS data. Once started, the button label changes to Stop and GPS data on screen is populated.

Tap the Clear GPS Data button to erase the GPS data.

About

The about screen has no user-configurable parameters. It identifies the firmware and hardware versions, the carrier selected, MEID, etc. for the WWAN radio.



Integrated Keypad



There are seven integrated programmable keys located on the Thor VM3 below the display. Each programmable key can be modified by the Orange key for a total of 14 programmable keys.

See [Keyboard Remapper](#) to remap these keys.

The default values for these keys are:

To get this Programmable Key	Press These Keys in this Order		Default Key Value
P1 (Programmable key 1)	P1		F1
P2 (Programmable key 2)	P2		F2
P3 (Programmable key 3)	P3		F3
P4 (Programmable key 4)	P4		F4
P5 (Programmable key 5)	P5		F5
P6 (Programmable key 6)	P6		Open/Close Soft Keyboard
P7 (Programmable key 7)	P7		Enter
P8 (Programmable key 8)	Orange	P1	<none>
P9 (Programmable key 9)	Orange	P2	<none>
P10 (Programmable key 10)	Orange	P3	<none>
P10 (Programmable key 11)	Orange	P4	<none>
P10 (Programmable key 12)	Orange	P5	<none>
P10 (Programmable key 13)	Orange	P6	<none>
P10 (Programmable key 14)	Orange	P7	<none>
Increase speaker volume	Blue	P1	Increase speaker volume
Decrease speaker volume	Blue	P2	Decrease speaker volume

To get this Programmable Key	Press These Keys in this Order		Default Key Value
Increase display brightness	Blue	P5	Increase display brightness
Decrease display brightness	Blue	P6	Decrease display brightness

The Blue plus P3, P4 or P7 key press sequences cause no action.

External 21-Key Keyboard



The table below shows the results of the keypress combinations. Each key has an unshifted mode, a Yellow shifted mode and a Green shifted mode.

- To enter Yellow shifted mode, press the Yellow key. The keypad remains in Yellow shifted mode until any other key is pressed or the Yellow key is pressed again.
- To enter Green shifted mode, press the Green key. The keypad remains in Green shifted mode until any other key is pressed or the Green key is pressed again.
- Pressing the Yellow key then the Green key cancels Yellow mode and the keypad is in Green shifted mode.
- Pressing the Green key then the Yellow key cancels Green mode and the keypad is in Yellow shifted mode.
- Arrow keys are unaffected by Yellow or Green shifted mode.
- Keypress combinations marked as N/A do nothing (the keystroke is consumed by the keyboard and not sent to the Thor VM3).
- Keys marked as programmable can be assigned a value using the [Keyboard Remapper](#) control panel.
- Pressing the backlight key (alone or after the Green or Yellow keys) cycles the keypad backlight through Low, Medium, High, Off then repeats.

Key	Non-Shifted	Yellow-Shifted	Green-Shifted
1	1	F1	F11
2	2	F2	F12
3	3	F3	F13
4	4	F4	F14
5	5	F5	F15
6	6	F6	F16
7	7	F7	F17
8	8	F8	F18

Key	Non-Shifted	Yellow-Shifted	Green-Shifted
9	9	F9	F19
0	0	F10	F20
PF	Programmable	Programmable	N/A
Del	Delete	Backspace	N/A
Tab	Tab	Backtab	N/A
Left	Left	Left	Left
Right	Right	Right	Right
Up	Up	Up	Up
Down	Down	Down	Down

External 95-Key Keyboard



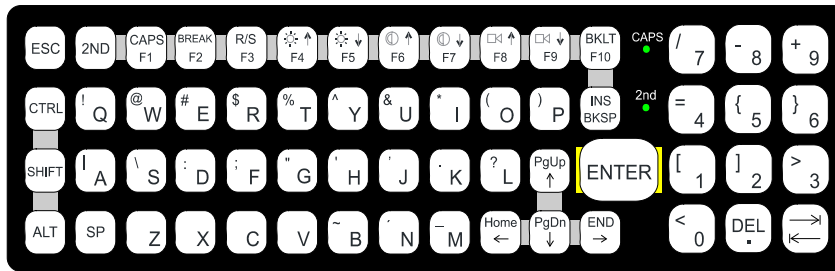
These key functions apply to both the [95-Key USB Keyboard](#) and the [95-key PS/2 Keyboard](#).

The key map table that follows lists the commands used for the Thor VM3. Note that since the Thor VM3 uses a Microsoft Windows operating system, no DOS Terminal Emulation keypress sequences are provided.

There are 10 hidden keys on the 95 key keyboard. Each of the hidden keys is accessed by pressing the <Fn> key (located in the top right hand corner) plus a key on the numeric keypad on the right. Additional function keys are supported as well.

To get this Key / Function	Press These Keys in this Order	
Insert	FN	0 (numeric keypad)
Home	FN	7 (numeric keypad)
Page Up	FN	9 (numeric keypad)
Delete	FN	. (numeric keypad)
End	FN	1 (numeric keypad)
Page Down	FN	3 (numeric keypad)
Up Arrow	FN	8 (numeric keypad)
Left Arrow	FN	4 (numeric keypad)
Down Arrow	FN	2 (numeric keypad)
Right Arrow	FN	6 (numeric keypad)

External 60-Key Keyboard



The key map table that follows lists the commands used when using the Thor VM3 with the [60-key PS/2 Keyboard](#).

The 60-key keyboard does not have a NumLock indicator or key. NumLock can be toggled On or Off using the **2nd SHIFT F10** keypress sequence. The default for NumLock is On. Changes made to the NumLock status persist across a Windows restart.

When running RFTerm, please refer to the RFTerm Reference Guide for equivalent keys and keypress sequences.

60 Key KeyMap 101-Key Equivalencies

- The following keymap is used on a Thor VM3 that is NOT running RFTerm.
- When using a sequence of keys that includes the 2nd key, press the 2nd key first then the rest of the key sequence.
- When the Thor VM3 boots, the default condition of Caps (or CapsLock) is Off. The Caps (or CapsLock) condition can be toggled with a **2nd + F1** key sequence. The CAPS LED is illuminated when CapsLock is On. The keymaps below assume Caps is Off.
- The Thor VM3 keyboard has several control keys. The following control keys are not used:
 - The 2nd function of the **F3** key is not used as Windows Power Management controls all power management modes on the Thor VM3.
 - The 2nd functions of the **F4** and **F5** keys are not used as the display brightness is adjusted via the buttons on the front of the Thor VM3.
 - The 2nd functions of the **F6** and **F7** keys are not used as the Thor VM3 has TFT LCD screen with no provision for contrast adjustments.
 - The 2nd functions of the **F8** and **F9** keys are not used as the sound volume on the Thor VM3 is controlled with a Microsoft Windows Control Panel.
 - The 2nd function of the **F10** key is not used as the display backlight timer also controls the keyboard backlight.

To get this Key / Function	Press These Keys in this Order		
Power On/Off	Power		
2nd	2nd		

To get this Key / Function	Press These Keys in this Order		
Shift	Shift		
Alt	Alt		
Ctrl	Ctrl		
Esc	Esc		
Space	Sp		
Enter	Enter		
Enter (numeric)	2nd	Enter	
CapsLock (Toggle)	2nd	F1	
Back Space	BkSp		
Tab	Tab		
Back Tab	2nd	Tab	
Ctrl-Break	Ctrl	2nd	F2
Pause	2nd	F2	
Up Arrow	Up Arrow		
Down Arrow	Down Arrow		
Right Arrow	Right Arrow		
Left Arrow	Left Arrow		
Insert	2nd	Bksp	
Delete (numeric)	2nd	DOT	
Home	2nd	Left Arrow	
End	2nd	Right Arrow	
Page Up	2nd	Up Arrow	
Page Down	2nd	Down Arrow	
ScrollLock	2nd	Shift	F10
F1	F1		
F2	F2		
F3	F3		
F4	F4		
F5	F5		
F6	F6		
F7	F7		
F8	F8		
F9	F9		
F10	F10		
F11	2nd	Shift	F1
F12	2nd	Shift	F2
a	A		
b	B		
c	C		

To get this Key / Function	Press These Keys in this Order		
d	D		
e	E		
f	F		
g	G		
h	H		
i	I		
j	J		
k	K		
l	L		
m	M		
n	N		
o	O		
p	P		
q	Q		
r	R		
s	S		
t	T		
u	U		
v	V		
w	W		
x	X		
y	Y		
z	Z		
A	Shift	A	
B	Shift	B	
C	Shift	C	
D	Shift	D	
E	Shift	E	
F	Shift	F	
G	Shift	G	
H	Shift	H	
I	Shift	I	
J	Shift	J	
K	Shift	K	
L	Shift	L	
M	Shift	M	
N	Shift	N	
O	Shift	O	
P	Shift	P	
Q	Shift	Q	

To get this Key / Function	Press These Keys in this Order		
R	Shift	R	
S	Shift	S	
T	Shift	T	
U	Shift	U	
V	Shift	V	
W	Shift	W	
X	Shift	X	
Y	Shift	Y	
Z	Shift	Z	
1	1		
2	2		
3	3		
4	4		
5	5		
6	6		
7	7		
8	8		
9	9		
0	0		
DOT	DOT		
<	2nd	0	
[2nd	1	
]	2nd	2	
>	2nd	3	
=	2nd	4	
{	2nd	5	
}	2nd	6	
/ (numeric)	2nd	Ctrl	7
/ (alpha)	2nd	7	
- (numeric)	2nd	Ctrl	8
- (alpha)	2nd	8	
+ (numeric)	2nd	Ctrl	9
+ (alpha)	2nd	9	
* (numeric)	2nd	I (letter i)	
* (alpha)	2nd	Ctrl	I (letter i)
: (colon)	2nd	D	
; (semicolon)	2nd	F	
?	2nd	L	
`	2nd	N	

To get this Key / Function	Press These Keys in this Order		
_ (underscore)	2nd	M	
, (comma)	2nd	J	
' (apostrophe)	2nd	H	
~ (tilde)	2nd	B	
\	2nd	S	
	2nd	A	
"	2nd	G	
!	2nd	Q	
@	2nd	W	
#	2nd	E	
\$	2nd	R	
%	2nd	T	
^	2nd	Y	
&	2nd	U	
(2nd	O	
)	2nd	P	

SPECIFICATIONS AND REFERENCE MATERIAL**Technical Specifications****Thor VM3**

Processor	Intel Atom Dual Core CPU operating at 1.46GHz
Memory	2 or 4 GB DDR3 RAM
Mass Storage	2 GB mSATA
Storage Expansion	4 GB mSATA (user installable)
Operating System	Microsoft Windows Embedded Compact 7
Radio Modules	802.11 a/b/g/n radio / Bluetooth
Scanner Options	No integrated scanner, Optional serial, USB or Bluetooth scanners
Display Technology	Intel HD graphics processor Active matrix TFT Resolution: 1024 x 468 pixels (maximum) 400 NIT (indoor) or 900 NIT (outdoor) brightness, 12.1" (measured horizontally) display Transmissive with LED backlight Automatic brightness control on outdoor display Vehicle motion screen blanking available
Keyboard	Integrated 7-key keypad Optional 95-key USB keyboard Optional numeric-only keyboard Optional adapter cable for Honeywell PS/2 keyboards
Touch Screen	Impact resistive, standard hardened Optional defroster Field replaceable front panel including touch screen and optional defroster
External Connectors	Optional external 802.11 / GPS / WWAN antenna connectors Additional connectors on dock, see below
Beeper	Minimum loudness greater than 95dBm at 10 cm in front of unit
Power Supply	10 to 60 VDC isolated
Uninterruptible Power Supply	Internal UPS battery, 30-minute life at -30°C (-22°F)
Backup Battery (RCT)	Internal lithium battery maintains Real Time Clock

VM1D Standard Dock



Caution: This dock is designed for DC power vehicle-mounted applications only.

SKUs	VM1001VMCRADLE (with RAM ball) VM1002VMCRADLE VM1003VMCRADLE
Power Connector	6-pin connector: Direct 10-60V DC input power Optional external converter for extended range DC (60-150 VDC)
COM1 Connector	9-pin male, RS-232 serial port, COM1 with switchable power on pin 9
COM2 Connector	9-pin male, RS-232 serial port, COM2 with switchable power on pin 9
CANBUS/AUDIO Connector	15-pin male, CANbus/Audio connector supports either audio/microphone via adapter cable or J1939 Female and J1939 Male connectors via CANbus cable
USB Connector	9-pin female, USB connector supports USB host port via adapter cable
Power Switch	Sealed power switch
Input Power	DC Input Voltage: 10- 60 VDC, Input Current: 4.6 Amps (typical), Input Fuse: 8A Time Delay. Replace with same size, rating and type of fuse: <ul style="list-style-type: none"> • Littelfuse 0215008.MXP • Cooper Bussmann BK1/S506-8-R • Bel Fuse 5HT 8-R or equivalent.
External Power Supply	50-150 VDC DC power supply available for vehicles over 60 VDC Note: Use dock VMX005VMCRADLE (VMXD Enhanced Dock of Off-Vehicle Use) in AC power applications.

VM3D Enhanced Dock



Caution: This dock is designed for DC power vehicle-mounted applications only.

SKU	VM3001VMCRADLE
Power Connector	6-pin connector: Direct 10-60V DC input power Optional external converter for extended range DC (60-150 VDC)
COM1 Connector	9-pin male, RS-232 serial port, COM1 with switchable power on pin 9
COM2 Connector	9-pin male, RS-232 serial port, COM2 with switchable power on pin 9
CANBUS/AUDIO Connector	15-pin male, CANbus/Audio connector supports either audio/microphone via adapter cable or J1939 Female and J1939 Male connectors via CANbus cable
USB1 Connector	9-pin female, USB connector supports USB host port via adapter cable Note: <i>USB Client port may not be supported by the Thor VM3 operating system.</i>
USB 2 Connector	15-pin female, USB connector supports 2 USB host ports via adapter cable
USB2 Connector	15-pin female, USB connector supports two USB host ports via adapter cable
USB Host Connector	One USB Host connector behind waterproof cap
Ethernet	One RJ45 Ethernet connector behind waterproof cap
Power Switch	Sealed power switch
Input Power	DC Input Voltage: 10- 60 VDC, Input Current: 4.6 Amps (typical), Input Fuse: 8A Time Delay. Replace with same size, rating and type of fuse: <ul style="list-style-type: none"> • Littelfuse 0215008.MXP • Cooper Bussmann BK1/S506-8-R • Bel Fuse 5HT 8-R or equivalent.
External Power Supply	50-150 VDC DC power supply available for vehicles over 60 VDC Note: <i>Use dock VMX005VMCRADLE (VMXD Enhanced Dock of Off-Vehicle Use) in AC power applications.</i>

VMXD Enhanced Dock



Caution: This dock is designed for DC power vehicle-mounted applications only.

SKUs	VMX004VMCRADLE
Power Connector	6-pin connector: 13.2VDC input power; requires DC power supply Connector is also used for screen blanking via COM1 CTS and RTS signals
COM1 Connector	9-pin male, RS-232 serial port, COM1 with switchable power on pin 9 Do not use COM1 when screen blanking box is attached to avoid port conflicts.
COM2 Connector	9-pin male, RS-232 serial port, COM2 with switchable power on pin 9
CANBUS/AUDIO Connector	15-pin male, CANbus/Audio connector supports either audio/microphone via adapter cable or J1939 Female and J1939 Male connectors via CANbus cable
USB1 Connector	9-pin female, USB connector supports USB host port via adapter cable Note: <i>USB Client port may not be supported by the Thor VM3 operating system.</i>
USB 2 Connector	15-pin female, USB connector supports 2 USB host ports via adapter cable
USB2 Connector	15-pin female, USB connector supports two USB host ports via adapter cable
USB 2 Connector	15-pin female, USB connector supports 2 USB host ports via adapter cable
USB Host Connector	One USB Host connector behind waterproof cap
Ethernet	One RJ45 Ethernet connector behind waterproof cap
Power Switch	Sealed power switch
External Power Supply	AC Adapter, 120-240VAC to 12VDC
Input Power	DC Input Voltage: 13.2VDC, Input Current: 4.6 Amps (typical), Input Fuse: 8A Time Delay. Replace with same size, rating and type of fuse: <ul style="list-style-type: none"> • Littelfuse 0215008.MXP • Cooper Bussmann BK1/S506-8-R • Bel Fuse 5HT 8-R or equivalent.
External Power Supply	50-150 VDC DC power supply required for all installations Note: <i>Use dock VMX005VMCRADLE (VMXD Enhanced Dock of Off-Vehicle Use) in AC power applications.</i>

VMXD Enhanced Dock for Off-Vehicle Use (QM3AC)



Caution: This dock is designed for AC power (non vehicle-mounted) applications only.

SKU	VMX005VMCRADLE
Power Connector	6-pin connector: 15VDC input power via required AC/DC Adapter
COM1 Connector	9-pin male, RS-232 serial port, COM1 with power on pin 9
COM2 Connector	9-pin male, RS-232 serial port, COM2 with power on pin 9
CANBUS/AUDIO Connector	15-pin male, CANbus/Audio connector supports either audio/microphone via adapter cable or J1939 Female and J1939 Male connectors via CANbus cable
USB1 Connector	9-pin female, USB connector supports USB host port via adapter cable Note: <i>USB Client port may not be supported by the Thor VM3 operating system.</i>
USB 2 Connector	15-pin female, USB connector supports 2 USB host ports via adapter cable
USB2 Connector	15-pin female, USB connector supports two USB host ports via adapter cable
USB 2 Connector	15-pin female, USB connector supports 2 USB host ports via adapter cable
USB Host Connector	One USB Host connector behind waterproof cap
Ethernet	One RJ45 Ethernet connector behind waterproof cap
Power Switch	Sealed power switch
External Power Supply	AC Adapter, 120-240VAC to 15VDC
Input Power	DC Input Voltage: 15VDC, Input Current: 4 Amps (maximum), Input Fuse: 8A Time Delay. Replace with same size, rating and type of fuse: <ul style="list-style-type: none"> • Littelfuse 0215008.MXP • Cooper Bussmann BK1/S506-8-R • Bel Fuse 5HT 8-R or equivalent.
External Power Supply	AC Adapter, 120-240VAC to 15VDC required Note: <i>This dock for use in AC power applications. See other docks for DC power applications.</i>

Dimensions

Thor VM3

Width	12.6" (31.9 cm)
Height	10.3" (26.1 cm)
Depth	2.4" (6.2 cm)
Weight	6.75 lb. (3.1 kg)

VM1D Standard Dock

Note: The RAM ball is not included in the following measurements.

Length	7.1" (18.0 cm)
Width	6.1" (15.5 cm)
Height	2.5" (6.4 cm), measurement includes strain relief cable clamps
Weight	3.2 lb. (1.5 kg)

VM3D and VMXD Enhanced Dock

Note: The RAM ball is not included in the following measurements.

Length	7.1" (18.0 cm)
Width	6.1" (15.5 cm)
Height	2.1" (5.4 cm), measurement includes strain relief cable clamps
Weight	2.4 lb. (1.1 kg)

Environmental Specifications

Thor VM3 and Dock

Operating Temperature	-22° to 122° F (-30°C to 50°C) [non-condensing]
Storage Temperature	-22°F to 140°F (-30°C to 60°C) [non-condensing]
Operating Humidity	Up to 95%
Water and Dust	IEC 60529 compliant to IP66
ESD	15 kV air, 8kV direct contact
Vibration	MIL-STD-810F, composite wheeled vehicles.
Crash	SAE-J 1455

Network Card Specifications

WLAN - Qualcomm Atheros 802.11a/b/g/n

Bus Interface	PCIe Mini Card
Wireless Frequencies (varies by regulatory domain)	2.4 to 2.4895 GHz IEEE 802.11b / 802.11g DSSS OFDM 5.15 to 5.82 GHz IEEE 802.11a DSSS OFDM
RF Data Rates	802.11a (OFDM) 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b (DSSS) 1, 2, 5.5, 11 Mbps 802.11g (OFDM) 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n (OFDM 20 MHz chs) 13, 26, 39, 52, 78, 104, 117, 130 Mbps 802.11n (OFDM 40 MHz chs) 27, 54, 81, 108, 162, 216, 243, 270 Mbps
RF Power Level	50 mW max.
Channels	FCC: 1-11, 36, 40, 44, 48, 149, 153, 157, 161 ETSI: 1-13, 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140
Connectivity	TCP/IP, Ethernet, ODI
Diversity	Yes

WPAN - Bluetooth

Bus Interface	USB
Enhanced Data Rate	Up to 3.0 Mbit/s over the air
Connection	No less than 32.80 feet (10 meters) line of sight
Bluetooth Version	2.0 + EDR
Operating Frequency	2.402 - 2.480 GHz
QDID	B013455

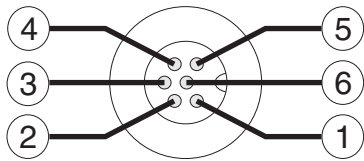
WWAN

Device	Software definable (data only), includes GPS
Technology	4G radio: LTE/UMTS/HSPA+/GSM/GPRS/EDGE/ EV-DO Supports 2 SIM cards for hyper-roaming between WWAN carriers

Port and Connector Pinouts

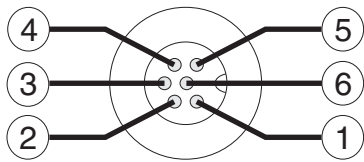
Power Supply Connector

VM1D Standard Dock and VM3D Enhanced Dock



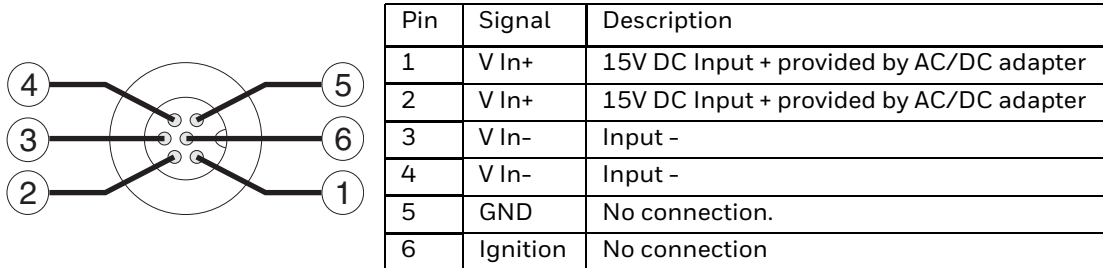
Pin	Signal	Description
1	V In+	10-60V DC input +
2	V In+	10-60V DC input +
3	V In-	input -
4	V In-	input -
5	GND	Chassis ground
6	Ignition	+0V to 60V to start terminal

VMXD Enhanced Dock



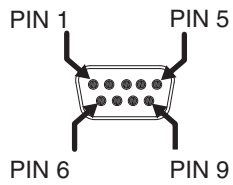
Pin	Signal	Description
1	V In+	13.2V DC Input + provided by DC/DC power supply
2	V In+	13.2V DC Input + provided by DC/DC power supply
3	V In-	Input -
4	V In-	Input -
5	COM1 RTS	Screen Blanking Box + The green wire in the power cable must be connected to the switched side of the screen blanking box. See the applicable wiring diagram below.
6	COM1 CTS	Screen Blanking Box - The white wire in the power cable must be connected to the unswitched side of the screen blanking box. See applicable wiring diagram below.
Cable shell provides chassis ground connection.		

VMXD Enhanced Dock for Off-Vehicle Use (QM3AC)



VMXD enhanced dock for off-vehicle use requires adapter cable VM1076CABLE to connect the dock to the AC/DC adapter. This cable is included in the AC kit for off-vehicle use.

COM1 and COM2 Connector

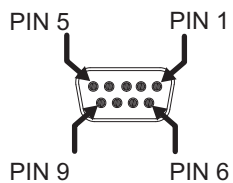


Pin	Signal	Description
1	DCD	Data Carrier Detect – Input
2	RXD	Receive Data – Input
3	TXD	Transmit Data – Output
4	DTR	Data Terminal Ready – Output
5	GND	Signal/Power Ground
6	DSR	Data Set Ready – Input
7	RTS	Request to Send – Output
8	CTS	Clear to Send – Input
9	+5VDC	Bar Code Scanner Power - 500mA max
Shell	CGND	Chassis Ground

VMXD Enhanced Dock only: Because the power supply connector port for the VMXD Enhanced Dock contains COM1 RTS and CTS signals, the COM1 port on the dock should not be used when the power cable is used for screen blanking to avoid port conflicts.

USB and USB1 Connector

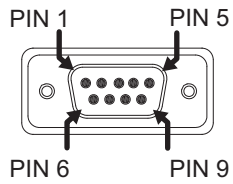
The Standard Dock has a USB connector. The Enhanced Dock has a USB1 connector.



Pin	Signal	Description
1	GND	Common ground
2	USBC_D+	USB client data signal (not used)
3	USBC_D-	USB client data signal (not used)
4	USB_H1_PWR	USB host 1; 5V output power
5	GND	Common ground
6	GND	Common ground
7	USB_H1_D+	USB host 1 data signal
8	USB_H1_D-	USB host 1 data signal
9	USBC_VBUS	USB client 5V detect from attached host

USB Host/Client Y Cable

D9 Male Connector



Pin	Signal	Description
1	GND	Common ground
2	USBC_D+	USB client data signal (not used)
3	USBC_D-	USB client data signal (not used)
4	USB_H1_PWR	USB host 5V output power
5	GND	Common ground
6	GND	Common ground
7	USB_H1_D+	USB host 1 data signal
8	USB_H1_D-	USB host 1 data signal
9	USBC_VBUS	USB client 5V detect from attached host

USB Host Connector



PIN 4
PIN 1

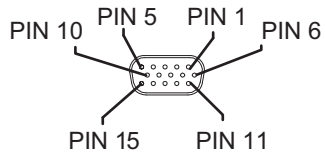
Pin	Signal	Description
1	5V_USB	USB Power, Current Limited
2	USB_H1_D-	USB D-
3	USB_H1_D+	USB D+
4	GND	USB Power Return
Shell	CGND	Chassis Ground

USB Client Connector

The USB client connection is not supported on the Thor VM3.

USB2 Connector

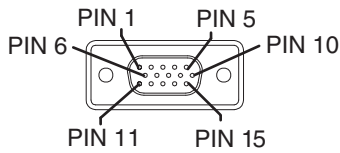
The USB2 connector is only present on the Enhanced Dock.



Pin	Signal	Description
1	Not Used	
2	Not Used	
3	Not Used	
4	Not Used	
5	Not Used	
6	USB_H2_PWR	USB host 2 5V output power
7	USB_H2_D+	USB host 2 data signal
8	USB_H2_D-	USB host 2 data signal
9	GND	Common ground
10	GND	Common ground
11	USB_H3_PWR	USB host 3 5V output power
12	USB_H3_D+	USB host 3 data signal
13	USB_H3_D-	USB host 3 data signal
14	GND	Common ground
15	GND	Common ground

USB Dual Host Y Cable

D15 Male Connector



Pin	Signal	Description
1	Not Used	
2	Not Used	
3	Not Used	
4	Not Used	
5	Not Used	
6	USB_H2_PWR	USB host 2 5V output power
7	USB_H2_D+	USB host 2 data signal
8	USB_H2_D-	USB host 2 data signal
9	GND	Common ground
	GND	Common ground
	USB_H3_PWR	USB host 3 5V output power
	USB_H3_D+	USB host 3 data signal
	USB_H3_D-	USB host 3 data signal
	GND	Common ground
	GND	Common ground

USB Host Connectors

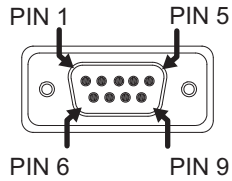


Pin	Signal	Description
1	5V_USB	USB Power, Current Limited
2	USB_H2_D-	USB D-
3	USB_H2_D+	USB D+
4	GND	USB Power Return
Shell	CGND	Chassis Ground

PS/2 to USB Keyboard Adapter Cable

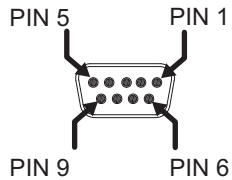
Note: This cable is not supported when the Thor VM3 is used with the VM1D Standard Dock.

D9 Male Connector - USB



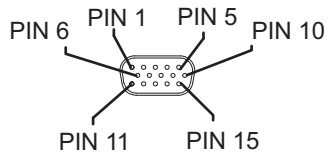
Pin	Signal	Description
1	Not Used	
2	Not Used	
3	Not Used	
4	USB_H1_PWR	USB host 5V output power
5	Not Used	
6	GND	Ground
7	USB_H1_D+	USB host 1 data signal
8	USB_H1_D-	USB host 1 data signal
9	USBC_VBUS	

D9 Female Connector - PS/2



Pin	Signal	Description
1	KBDAT	Keyboard data
2	Not Used	
3	Not Used	
4	Not Used	
5	GND	Ground
6	Not Used	
7	KBCLK	Keyboard clock
8	GND	Ground
9	VCC	Keyboard power

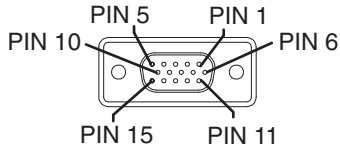
CANbus / Audio Connector



Pin	Signal	Description
1	-	CAN reserved
2	CAN_L	CAN_L bus line dominant low
3	CAN_GND	CAN Ground
4	-	CAN reserved
5	GND	Optional ground
6	Audio return	Headset return
7	Audio output	Headset output
8	Mic input	Microphone input
9	Mic return	Microphone return
10	Audio Return	
11	GND	Optional ground
12	CAN_SHLD	
13	CAN_H	CAN_H bus line dominant high
14	-	CAN reserved
15	CAN_V+	Option CAN external Power Supply

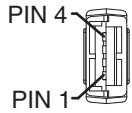
Headset Adapter Cable

D15 Female Connector



Pin	Signal	Description
1	Not used	
2	Not used	
3	Not used	
4	Not used	
5	Not used	
6	Audio return	Headset return
7	Audio output	Headset output
8	Mic input	Microphone input
9	Mic return	Microphone return
10	Not used	
11	Not used	
12	Not used	
13	Not used	
14	Not used	
15	Not used	

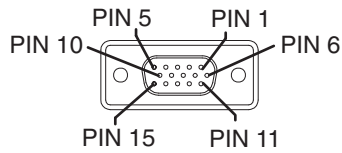
Quick Connect Headset Connector



Pin	Signal	Description
1	Mic input	Microphone input
2	Mic return	Microphone return
3	Audio output	Headset output
4	Audio return	Headset return

CANbus Y Cable

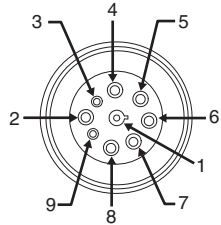
D15 Female Connector



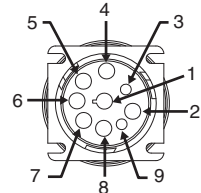
Pin	Signal	Description
1	Not Used	
2	CAN_L	CAN_L bus line dominant low
3	CAN_GND	CAN ground
4	Not Used	CAN reserved
5	GND	Ground
6	Not used	
7	Not used	
8	Not used	
9	Not used	
10	Not used	
11	GND	Optional ground
12	CAN_SHLD	
13	CAN_H	CAN_H bus line dominant high
14	Not Used	CAN reserved
15	CAN_V+	CAN external power supply

9-Pin J1939 (Deutsch) Connectors

Receptacle-
J1939 Female



Socket
J1939 Male



Pin	Signal	Description
1	CAN_GND	CAN Ground
2	CAN_V+	Option CAN external Power Supply
3	CAN_H	CAN_H bus line dominant high
4	CAN_L	CAN_L bus line dominant low
5	CAN_SHLD	
6	Not used	
7	Not used	
8	Not used	
9	Not used	

Hat Encoding

Desired ASCII	Hex Value	Hat Encoded
NUL	0X00	^@
SOH	0X01	^A
STX	0X02	^B
ETX	0X03	^C
EOT	0X04	^D
ENQ	0X05	^E
ACK	0X06	^F
BEL	0X07	^G
BS	0X08	^H
HT	0X09	^I
LF	0X0A	^J
VT	0X0B	^K
FF	0X0C	^L
CR	0X0D	^M
SO	0X0E	^N
SI	0X0F	^O
DLE	0X10	^P
DC1 (XON)	0X11	^Q
DC2	0X12	^R
DC3 (XOFF)	0X13	^S
DC4	0X14	^T
NAK	0X15	^U
SYN	0X16	^V
ETB	0X17	^W
CAN	0X18	^X
EM	0X19	^Y
SUB	0X1A	^Z
ESC	0X1B	^[
FS	0X1C	^\
GS	0X1D] ^
RS	0X1E	^^
US	0X1F	^ (Underscore)
	0X7F	^?
	80	~^@
	81	~^A
	82	~^B
	83	~^C
IND	84	~^D
NEL	85	~^E
SSA	86	~^F
®	AE	~. (Period)
–	AF	~/
°	B0	~0 (Zero)
±	B1	~1

Desired ASCII	Hex Value	Hat Encoded
ESA	87	~^G
HTS	88	~^H
HTJ	89	~^I
VTS	8A	~^J
PLD	8B	~^K
PLU	8C	~^L
RI	8D	~^M
SS2	8E	~^N
SS3	8F	~^O
DCS	90	~^P
PU1	91	~^Q
PU2	92	~^R
STS	93	~^S
CCH	94	~^T
MW	95	~^U
SPA	96	~^V
EPA	97	~^W
	98	~^X
	99	~^Y
	9A	~^Z
CSI	9B	~^[
ST	9C	~^\
OSC	9D	~^]
PM	9E	~^^
APC	9F	~^ (Underscore)
(no-break space)	A0	~ (Tilde and Space)
¡	A1	~!
¢	A2	~"
£	A3	~#
¤	A4	~\$
¥	A5	~%
¦	A6	~&
§	A7	~'
¨	A8	~(
©	A9	~)
*	AA	~*
«	AB	~+
–	AC	~,
(soft hyphen)	AD	~ (Dash)
×	D7	~W
Ø	D8	~X
Ù	D9	~Y
Ú	DA	~Z

Desired ASCII	Hex Value	Hat Encoded
²	B2	~2
³	B3	~3
´	B4	~4
µ	B5	~5
¶	B6	~6
·	B7	~7
¸	B8	~8
¹	B9	~9
º	BA	~.
»	BB	~;
¼	BC	~<
½	BD	~=
¾	BE	~>
¿	BF	~?
À	C0	~@
Á	C1	~A
Â	C2	~B
Ã	C3	~C
Ä	C4	~D
Å	C5	~E
Æ	C6	~F
Ç	C7	~G
È	C8	~H
É	C9	~I
Ê	CA	~J
Ë	CB	~K
Ì	CC	~L
Í	CD	~M
Î	CE	~N
Ï	CF	~O
Ð	D0	~P
Ñ	D1	~Q
Ò	D2	~R
Ó	D3	~S
Ô	D4	~T
Õ	D5	~U
Ö	D6	~V

Desired ASCII	Hex Value	Hat Encoded
Û	DB	~[
Ü	DC	~\
Ý	DD	~]
Þ	DE	~^
ß	DF	~_ (Underscore)
à	E0	~`
á	E1	~a
â	E2	~b
ã	E3	~c
ä	E4	~d
å	E5	~e
æ	E6	~f
ç	E7	~g
è	E8	~h
é	E9	~i
ê	EA	~j
ë	EB	~k
ì	EC	~l
í	ED	~m
î	EE	~n
ï	EF	~o
ð	F0	~p
ñ	F1	~q
ò	F2	~r
ó	F3	~s
ô	F4	~t
õ	F5	~u
ö	F6	~v
÷	F7	~w
ø	F8	~x
ù	F9	~y
ú	FA	~z
û	FB	~{
ü	FC	~
ý	FD	~}
þ	FE	~~
ÿ	FF	~^?

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Version 3, 29 June 2007

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```
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www.sourceforge.net/projects/tinyxml

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for bzflag (<http://www.bzflag.org>)

based on:

md5.h and md5.c

reference implementation of RFC 1321

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* blowfish

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```
// blowfish.cpp C++ class implementation of the BLOWFISH encryption algorithm
// _THE BLOWFISH ENCRYPTION ALGORITHM_
// by Bruce Schneier
// Revised code--3/20/94
```

// Converted to C++ class 5/96, Jim Conger

Blowfish is a symmetric block cipher that can be used as a drop-in replacement for DES or IDEA. It takes a variable-length key, from 32 bits to 448 bits, making it ideal for both domestic and exportable use. Blowfish was designed in 1993 by Bruce Schneier as a fast, free alternative to existing encryption algorithms. Since then it has been analyzed considerably, and it is slowly gaining acceptance as a strong encryption algorithm. Blowfish is unpatented and license-free, and is available free for all uses.

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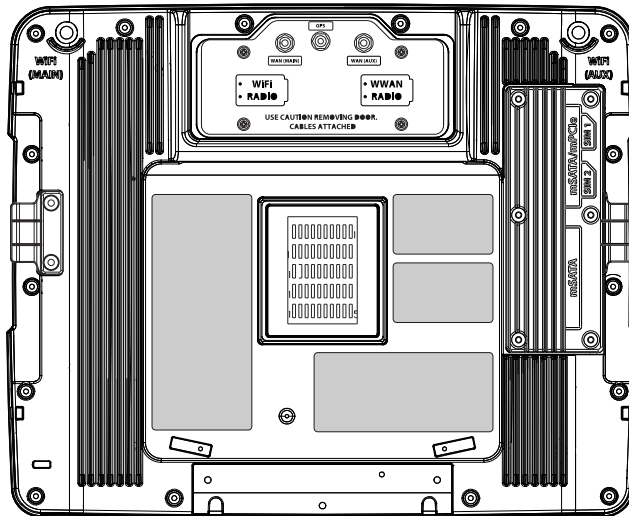
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