Honeywell

Thor™ VM2

Vehicle-Mount Computer

Microsoft® Windows® Embedded CE 6 Operating System

Vehicle Mounting Reference Guide

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Lithium Battery Safety Statement

Caution: Lithium battery inside. Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by battery manufacturer. (US)

Attention: Contient une pile de lithium. Risque d'explosion dans le cas où la pile ne serait pas correctement remplacée. Remplacer uniquement avec une pile semblable ou equivalente au type de pile recommandé par le fabricant. (FR)

Forsigtig: Indeholder lithiumbattterier. Risiko for eksplosion, hvis batteriet udskiftes forkert. Må kun udskiftes med samme eller tilsvarende type, som anbefalet af fabikanten. (DK)

Varoitus: Tämä tuote käyttää laservaloa. Skannerissa on jokin seuraavista tarroista. Lue Huomio-kohta. (FI)

Vorsicht: Enthält Lithium-Batterie. Bei unsachgemäßem Ersatz besteht Explosionsgefahr. Nur durch gleichen oder vom Hersteller empfohlenen Typ ersetzen. (DE)

Attenzione: Batteria al litio. Pericolo di esplosione qualora la batteria venga sostituita in maniera scorretta. Sostituire solo con lo stesso tipo o equivalente consigliato per il fabbricante. (IT)

Atenção: Contém pilha de lítio. Há perigo de explosão no caso de uma substituição incorreta. Substitua somente pelo mesmo tipo, ou equivalente, recomendado pelo fabricante. (PT)

Varning: Innehåller litiumbatteri. Fara för explosion om batteriet är felaktigt placerat eller av fel typ. Använd endast samma eller motsvarande typ batterier rekommenderade av tillverkaren. (SE)

Advarsel: Innmontert Lithium batteri. Eksplosjonsfare ved feil montering av batteri. Benytt kun batteri anbefalt av produsent. (NO)

Cuidado: Pila de litio adentro. Peligro de explosión si la pila se reemplaza incorrectamente. Reemplace solamente con el mismo tipo o equivalente recomendado por el fabricante. (ES)

Oppassen: Bevat Lithium-batterij. Incorrrecte plaatsing van batterij kan leiden tot explosiegevaar. Alleen vervangen door hetzelfde of door fabrikant aanbevolen gelijkwaardig type. (NL)

Προσοχή: Υπάρχει μπαταρία από λίθιο εσωτερικά. Υπάρχει κίνδυνος έκρηξης εάν η μπαταρία αντικατασταθεί με λανθασμένο τρόπο. Αντικαταστήστε μόνο με τον ίδιο ή ισοδύναμο τύπο που συνιστάται από τον κατασκευαστή. (GR)	**주의:** 리튬 배터리 내부. 배터리가 잘못 설치되었을 경우 폭발의 위험이 있습니다. 동일한 배터리, 또는 배터리 제조업체가 권장하는 배터리로 교체하십시오. (KR)
注意: リチウム電池が入っています。間違った種類の電池を使用すると、破裂する恐れがあります。同じ電池、または電池製造元が推奨する同等の電池を使用してください。 (JP)	**小心:** 内装锂电池。如电池更换不当，则有发生爆炸的危险。只能用电池制造商推荐的相同或同等电池进行更换。 (CN)
Dikkat: İçinde lityum bataryası bulunur. Bataryanın yanlış değiştirilmesi patlama tehlikesi yaratır. Aynısıyla veya üreticinin önerdiği eşdeğer tiple değiştirin. (TR)	

Legend: Chinese – CN; Danish – DK; Dutch – NL; English – US; Finnish – FI; French – FR; German – DE; Greek – GR; Italian – IT; Japanese – JP; Korean – KR; Norwegian – NO; Portuguese – PT; Spanish – ES; Swedish – SE; Turkish – TR.

Vehicle Power Supply Connection Safety Statement

Vehicle Power Supply Connection: If the supply connection is made directly to the battery, a ten A slow-blow fuse should be installed in the positive lead within 5 inches (12.7 cm.) of the battery positive (+) terminal. (US)

Raccordement de l'alimentation du véhicule Si l'alimentation est raccordée directement à la batterie, un fusible à action retardée de 10 A doit être installé sur le câble positif à moins de 12,7 cm de la borne positive (+) de la batterie. (FR)

EL forsyning af køretøjet. Er forsyningsforbindelsen direkte tilknyttet til batteriet og og tilsluttet til den positive part indenfor 12,7 cm (+ delen). vil der være en langsom tændelse af 10 ampere. (DK)

Kytkentä ajoneuvon virtalähteeseen Jos virtaa otetaan suoraan akusta, 10 ampeerin hidas sulake on asennettava positiiviseen johtoon enintään 12 cm:n etäisyydelle akun positiivisesta (+) navasta. (FI)

Anschluss an Fahrzeugbatterie Bei direktem Anschluss an die Fahrzeugbatterie sollte eine träge 10A-Sicherung in die positive Leitung zwischengeschaltet werden, und zwar nicht weiter als ca. 13 cm von der positiven (+) Batterieklemme entfernt. (DE)

Σύνδεση Τροφοδοτικού Ισχύος Οχήματος Αν η σύνδεση του τροφοδοτικού γίνει κατευθείαν στη μπαταρία, μια ασφάλεια βραδείας τήξης των 10A θα πρέπει να τοποθετηθεί στο θετικό καλώδιο εντός 5 ιντσών (12,7 εκ.) του θετικού (+) ακροδέκτη της μπαταρίας. (GR)

Collegamento dell'alimentazione del veicolo Se il collegamento dell'alimentazione viene stabilito direttamente con la batteria, è necessario installare un fusibile ad azione lenta da 10 A nel conduttore positivo a meno di 5 in. (12,7 cm) dal terminale positivo (+) della batteria. (IT)

Tilkople strømforsyningen til kjøretøyet Hvis strømforsyningen koples direkte til batteriet, skal det installeres en 10 A treg sikring i den positive ledningen innen 12,7 cm fra plusspolen (+) på batteriet. (NO)

Ligação do fornecimento de corrente do veículo Se a ligação de fornecimento de corrente for ligada directamente à bateria, deve instalar-se um fusível de 10A no terminal positivo, a 12,7 cm. do terminal positivo (+) da bateria. (PT)

Conexión de suministro eléctrico para el vehículo Si el suministro eléctrico se proporciona directamente a la batería, se debe instalar un fusible de retardo de 10 A en el conductor positivo, como máximo a 12,7 cm (5 pulgadas) del terminal positivo (+). (ES)

Fordonets strömförsörjningskoppling Om strömkopplingen görs direkt till batteriet, måste en 10A-säkring installeras i den positivt laddade ledningen inom 12.7 cm från batteriets pluspol (+). (SE)

Taşıt Güç Kaynağı Bağlantısı Kaynak bağlantısı doğrudan aküye yapılırsa, pozitif bağlantı kablosu üzerinde akünün pozitif (+) kutbuna 12.7 cm mesafede 10A'lık yavaş atan bir sigorta monte edilmelidir. (TR)

Legend: Danish – DK; English – US; Finnish – FI; French- - FR; German – DE; Greek – GR; Italian – IT; Norwegian – NO; Portuguese – PT; Spanish – ES; Swedish – SE; Turkish – TR.

Table of Contents

Chapter 1 - Introduction

The Thor VM2 is a rugged vehicle-mounted computer with a Microsoft® Windows® Embedded CE 6 operating system. The Thor VM2 is designed to be mounted to a Quick Mount Smart Dock in a vehicle with either a RAM mount or U bracket system. A power cable is provided with the Thor VM2 Dock. An optional USB keyboard and keyboard mount is available. Optional communication cables are available.

About This Guide

This Thor VM2 Vehicle Mounting Reference Guide provides instruction for the installer to follow when mounting a Thor VM2 in a vehicle.

Powered Vehicle Mounting

Vehicle mounting brackets are specifically designed for vehicle mount applications. The vehicle mounted assembly restrains the Thor VM2 and isolates it from shock and vibration.

The vehicle mount holds the Quick Mount Smart Dock and the Thor VM2 attaches to the Dock. The Dock remains attached to the vehicle, however, the Thor VM2 has a quick release located on the lower rear side that allows the Thor VM2 to easily be removed from the Dock. The Thor VM2 can be operated for a minimum of 30 minutes from an internal UPS battery when not attached to a Dock. The Thor VM2 can be transferred from one Dock equipped vehicle to another for easy portability. The Dock provides accessory attachment and conditioned power for the Thor VM2.

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 VM2 into the vehicle mounted assembly until the assembly is securely fastened to the vehicle.

Preparing for Vehicle Mounting

The Thor VM2 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 VM2 in a vehicle. Refer to the following sections in this document for more details.

1. Attach the RAM or U Bracket mounting assembly to the vehicle.
2. Attach the Quick Mount Smart Dock to the vehicle mounting assembly.
3. Secure the Thor VM2 in the Dock.
4. Secure the optional external keyboard to either an integrated or remote mounting bracket.
5. Adjust the Thor VM2 to the best viewing angle.
6. Connect any external or remote mount antennas.
7. Connect peripheral cables.
8. Connect vehicle power:

- Connect 10-60 VDC power supply to the Thor VM2 Dock -*or*-
- Connect 72-144 VDC power to a DC/DC power adapter and connect the adapter to the Dock.

8. Secure all cables in strain relief cable clamps.

The Thor VM2 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.

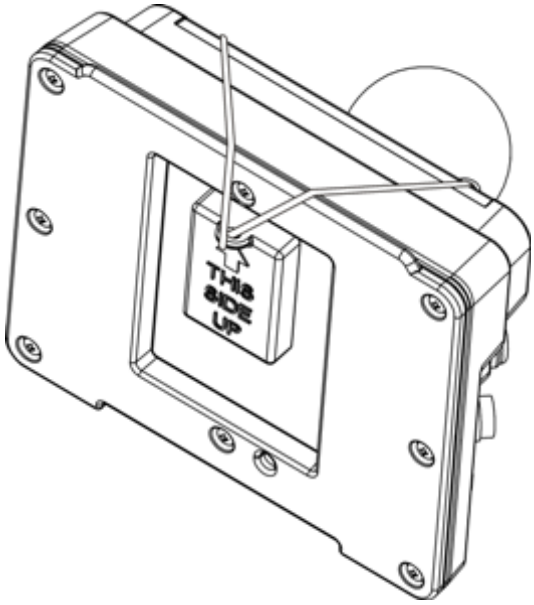
Cleaning

Do not use paper towels or harsh-chemical-based cleaning fluids since they may result in damage to the Thor VM2 surfaces, cables, connectors and mounting hardware.

Use a clean soft cloth to wipe any dirt, moisture or grease from the Thor VM2, connectors, cables or the vehicle mounting hardware. Do not use any liquid to clean the Thor VM2, or connectors. Spray or dampen the cleaning cloth with the cleaning liquid. If possible, clean only those areas which are soiled. Lint/particulates can be removed with clean, filtered canned air.

I/O Pin Cover

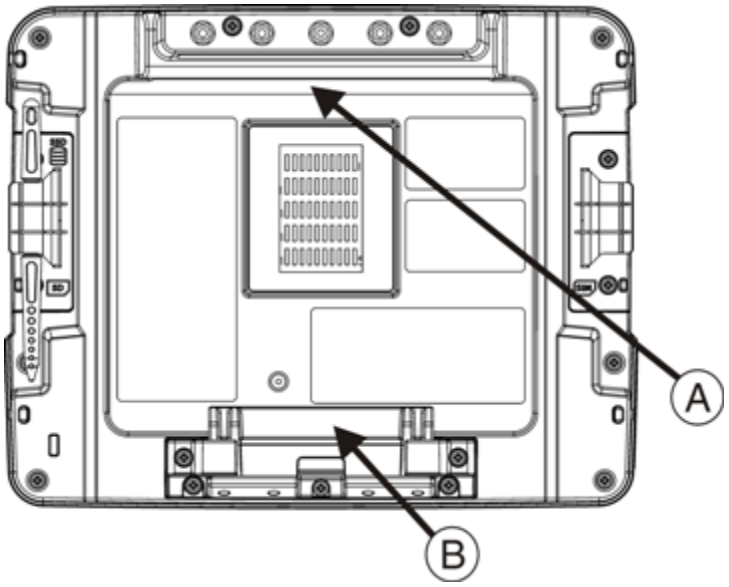
The Dock contains a tethered I/O Pin Cover to protect the I/O pins on the Dock when a Thor VM2 is not mounted in the Dock.



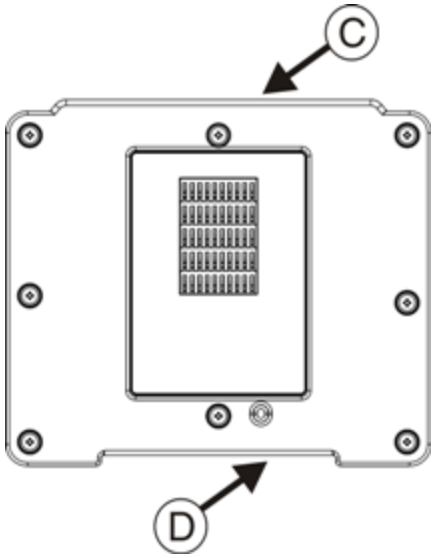
- When the Thor VM2 is not installed in the Dock, use the I/O Pin Cover to protect the pins on the Dock as shown above.
- When a Thor VM2 is installed in the Dock, the I/O Pin Cover can be placed out of the way behind the Dock.

Place Thor VM2 in the Dock

Back of Thor VM2



Front of Quick Mount Smart Dock



A. Notch on Thor VM2
B. Release lever
C. Upper Lip on Dock
D. Lower Lip on Dock

1. Locate the notch on the upper rear of the Thor VM2 (item A above).
2. Slide this notch over the top lip (C) of the Dock. Slide the Thor VM2 from side to side on the Dock to make sure it fully engages on the lip of the Dock. If the Thor VM2 cannot be slid side to side, the lip is engaged.
3. Pull the quick release lever (B) on the Thor VM2 down and push the Thor VM2 against the Dock.
4. Release the quick release lever. The quick release lever catches the lower lip on the Dock and secures the Thor VM2 to the Dock.
5. If necessary, adjust the viewing angle of the Thor VM2.

When the Thor VM2 is placed in the Dock, the following may happen:

- If the Thor VM2 is off and power is connected to the Dock, the Thor VM2 may boot when placed in the Dock. The behavior depends on the Power Configuration Mode selected.
- If the Thor VM2 is on and power is connected to the Dock, the Thor VM2 power management timers may change when the Thor VM2 is placed in the Dock.

Please refer to the *Thor VM2 Reference Guide* for more details.

When the Thor VM2 is removed from the Dock, the following may happen:

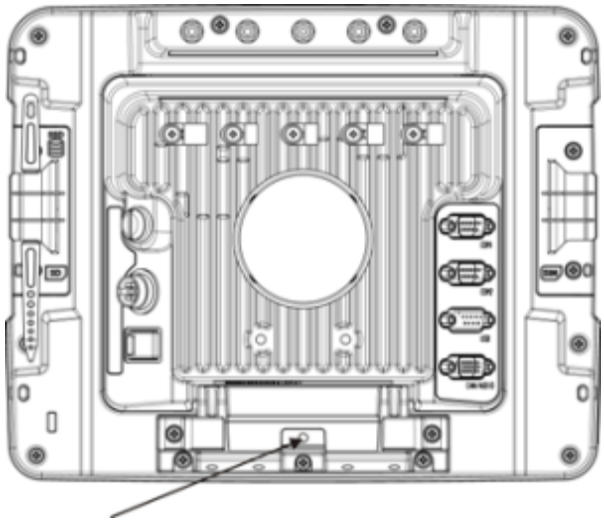
- If the Thor VM2 is on and power is connected to the Dock, the Thor VM2 power management timers may change when the Thor VM2 is removed from the Dock.

Please refer to the *Thor VM2 Reference Guide* for more details.

Padlock

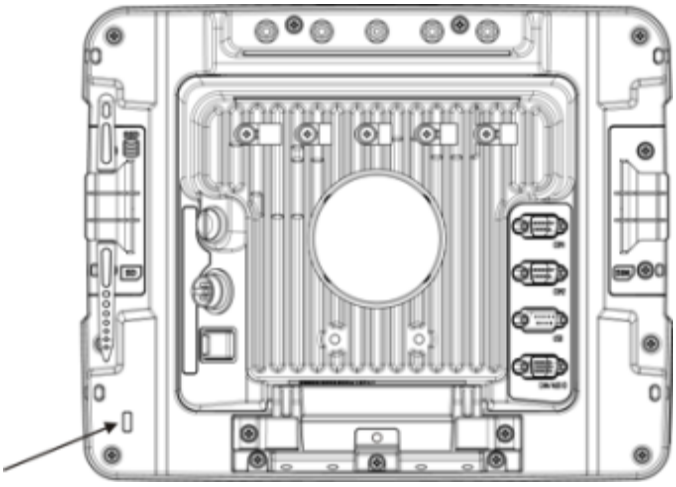
It may be desirable to secure the Thor VM2 in the Dock so it cannot be removed from the Dock. The quick release handle on the Thor VM2 is notched to allow a user supplied standard padlock to be placed through a hole in the bracket on the back of the Thor VM2 in the location shown below. Once the padlock is installed, the release handle cannot be moved so the Thor VM2 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 VM2 can be secured with a standard laptop security cable using the slot on the back of the Thor VM2.

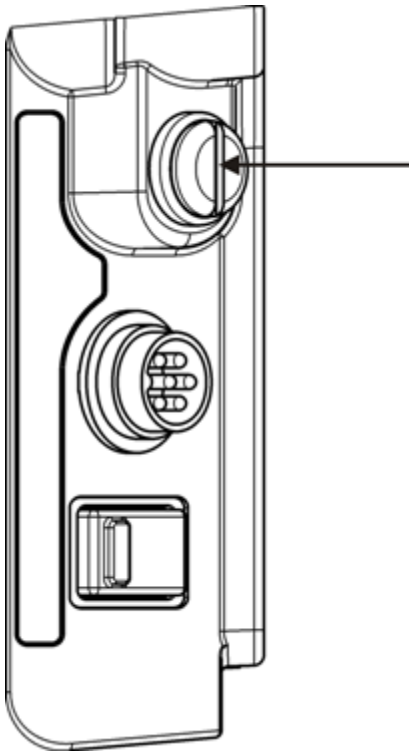


Fuse

The Thor VM2 uses an 8A time delay (slow blow), fuse that is externally accessible and user replaceable. The fuse is located on the back of the Quick Mount Smart Dock. The fuse is accessed by unscrewing the cap as indicated below.

Should it need replacement, replace with same size, rating and type of fuse – Littelfuse 0215008.MXP or equivalent.

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



Chapter 2 - Installation - RAM Mount

Refer to the **Thor VM2 Reference Guide** when connecting Input/Output devices to the Thor VM2 Quick Mount Smart Dock after the Thor VM2 is mounted to a vehicle.

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 Assembly

Thor VM2 Mounting Kit

A Thor VM1 mounting kit can be used when an external keyboard is not installed and includes the parts on this page.

A Thor VM2 mounting kit can be used when an external keyboard is installed includes the parts on this page plus the parts on the next page.

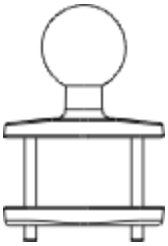
Each mounting kit contains:

RAM Ball (Size D) for back of Thor VM2 Quick Mount Smart Dock with hardware screws and washers) to attach RAM ball to Dock

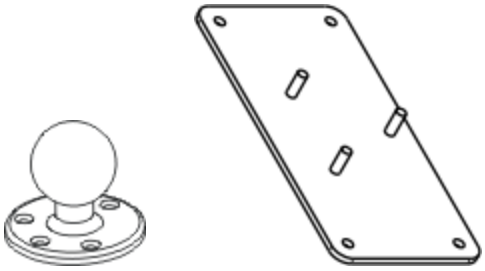
RAM Arm (Size D), length varies by kit selected

One of three mounting options:

1. RAM Ball mount (Size D), or

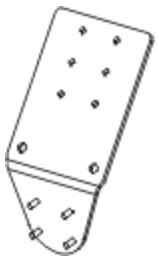


2. RAM Clamp mount (Size D), or



3. RAM Plate mount with RAM Ball (Size D) with Hardware (washers and nuts) to attach Ball to Plate

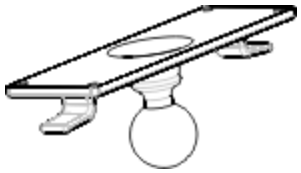
Additionally, the kits for the Thor VM2 with an integrated keyboard include:



Thor VM2 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) with hardware (screws and washers) to attack Keyboard to Mounting Plate

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)

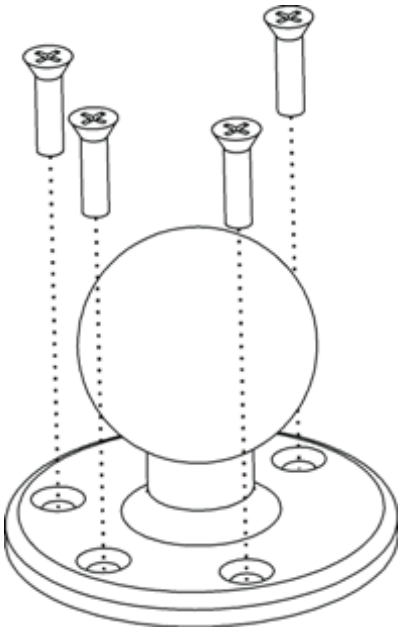
Step 1a – Attach RAM Ball to Vehicle

Note: If you are using the RAM clamp mount, please go to Step 1b. If you are using the RAM plate mount, please go to Step 1c.

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 VM2.
2. Attach the RAM ball base to the vehicle mounting surface using four 1/4 bolts (or equivalent) fasteners.

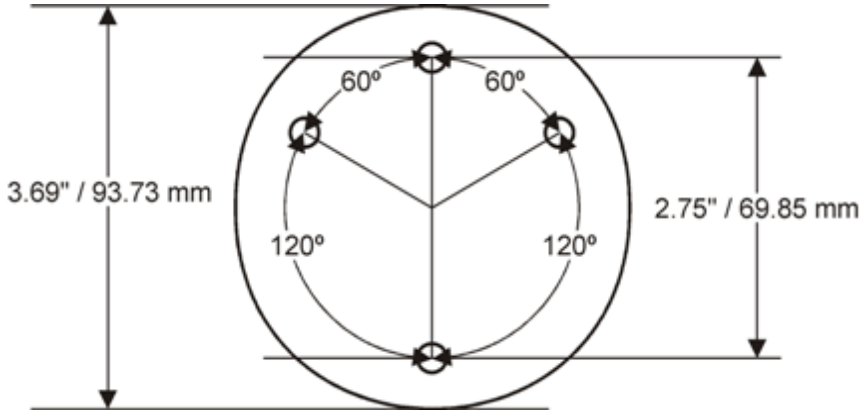
Note: 1/4 bolts not included.

IMPORTANT: Mount to the most rigid surface available.



Mounting Dimensions

Note: Drill and tap holes for 1/4 bolts.

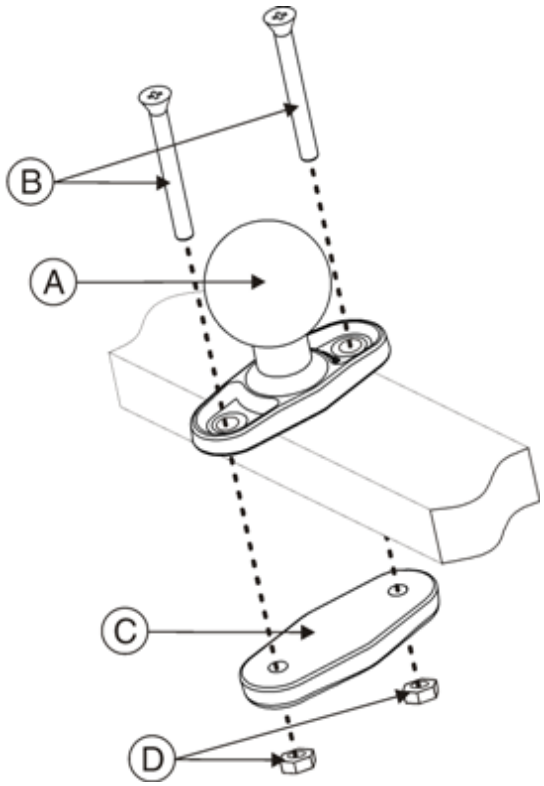


(Not To Scale)

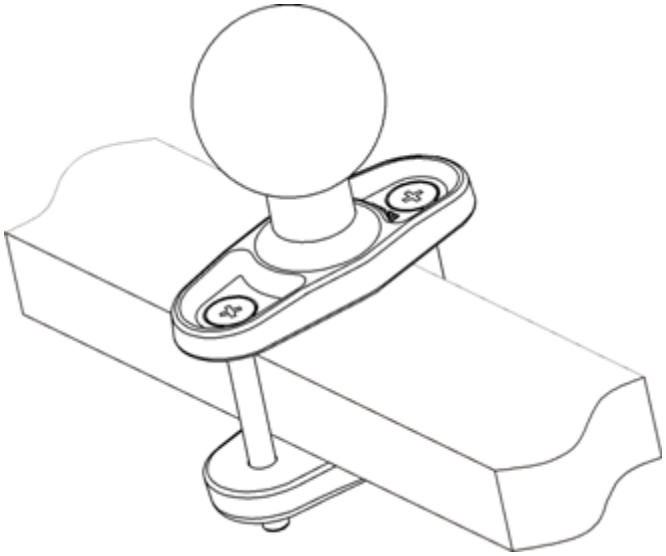
Step 1b – Mount RAM Clamp to Vehicle

Note: If you are using the RAM ball mount, please go to Step 1a. If you are using the RAM plate mount, please go to Step 1c.

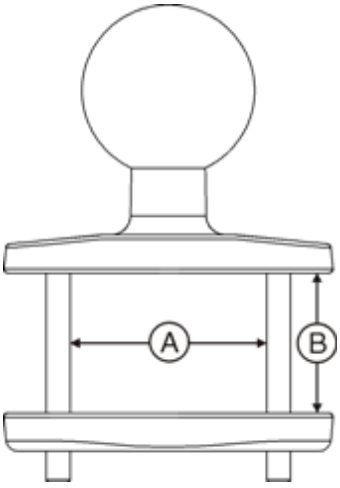
1. Determine the position for mounting the RAM clamp mount. The clamp mount can be used on a beam (such as on a fork lift truck) up to 2.5" (63.5 mm) wide and approximately 2" (50.8 mm) thick. The clamp may be attached to a thicker beam by substituting longer bolts (not included). Be sure to position the RAM clamp mount to allow access to the switches and ports on the bottom of the Thor VM2.



2. Position the upper clamp piece with ball (A) on the beam. Place the bolts (B) through the holes in the upper clamp piece.
3. Position the lower clamp piece (C) below the beam. Align the bolts with the holes in the lower clamp piece.
4. Place the nylon locking nuts (D) on the bolts and tighten the bolts.



Mounting Dimensions



A. 2.56” (65.02 mm)

B. 1.84” (46.74 mm) Varies depending on bolt length

(Not To Scale)

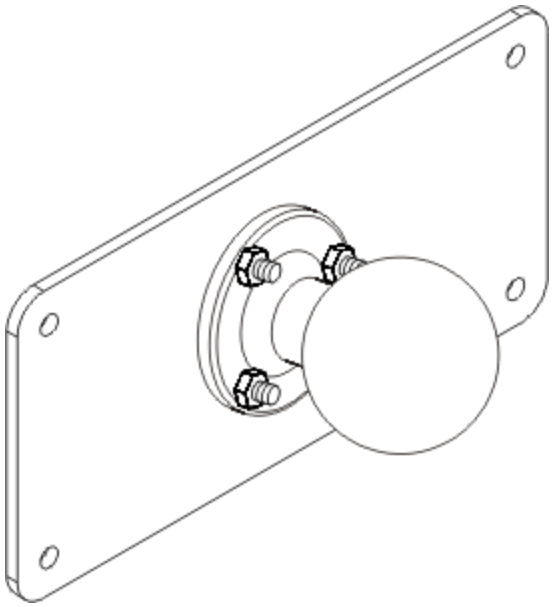
Step 1c – Attach RAM Plate to Vehicle and Attach RAM Ball

Note: If you are using the RAM ball mount, please go to Step 1a. If you are using the RAM clamp mount, please go to Step 1b.

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 VM2.
2. Attach the RAM ball plate to the vehicle mounting surface using four 1/4 bolts (or equivalent) fasteners.
3. If not already attached, attach the RAM ball to the RAM ball plate using three M6 nuts and washers.

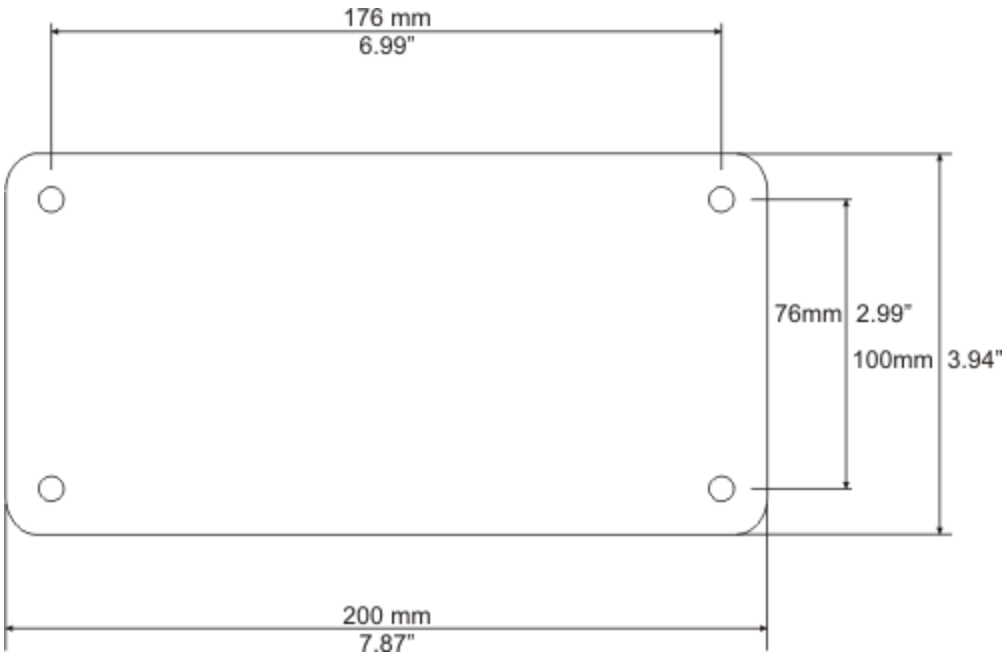
Note: 1/4 bolts not included.

IMPORTANT: Mount to the most rigid surface available.



Mounting Dimensions

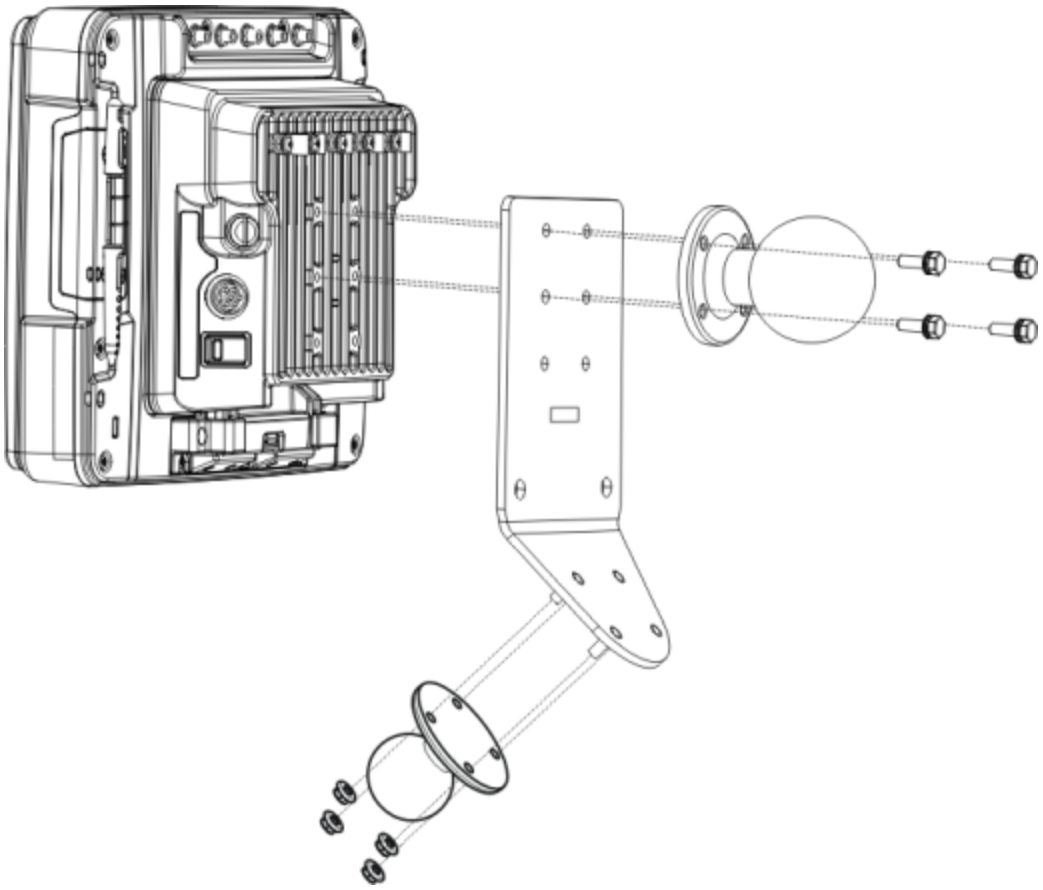
There are 4 mounting holes in the plate. Use four 1/4 bolts to secure the plate to the vehicle.



(Not to Scale)

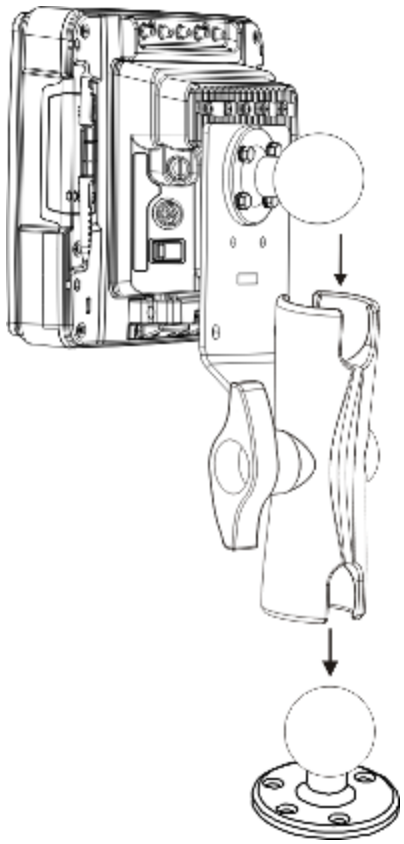
Step 2 – Attach RAM Mount Ball to the Thor VM2 Quick Mount Smart Dock

1. Turn the Thor VM2 off before attaching the RAM mount ball.
2. Place the Thor VM2 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 VM2 Dock, aligning the holes on the back of the Thor VM2 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 VM2 Dock, aligning the holes on the back of the Thor VM2 Dock with the holes on the RAM ball base.
5. Attach with four M5 screws, flat washers and lock washers.
6. If using the external keyboard mount, attach the Size C RAM ball to the Thor VM2 Keyboard bracket with four M5 nuts, flat washers and lock washers.



Step 3 – Attach Thor VM2 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 VM2 into the Dock

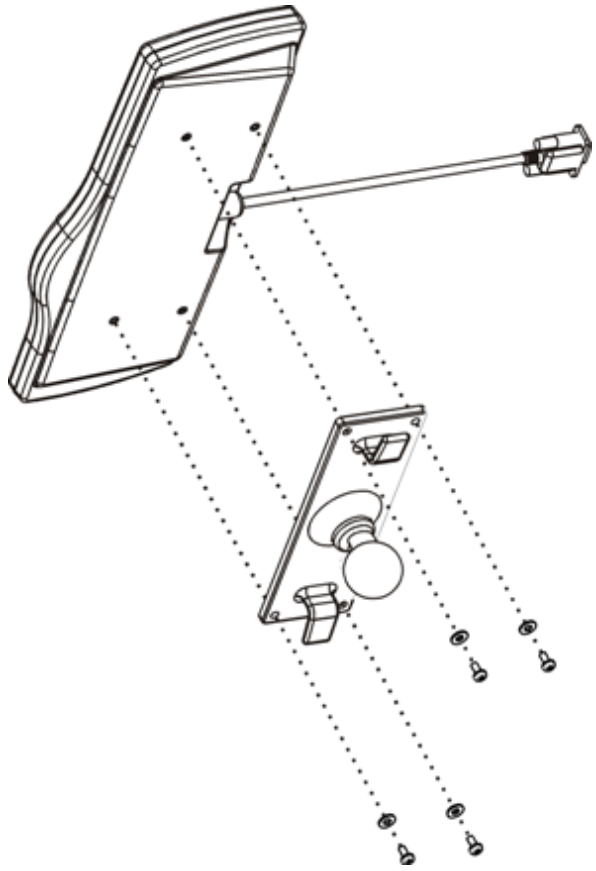
If the Thor VM2 is not already mounted to the Dock, place the Thor VM2 in the dock.

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

Step 5 – Attach Keyboard to Mounting Plate

Note: This step is only for a Thor VM2 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.

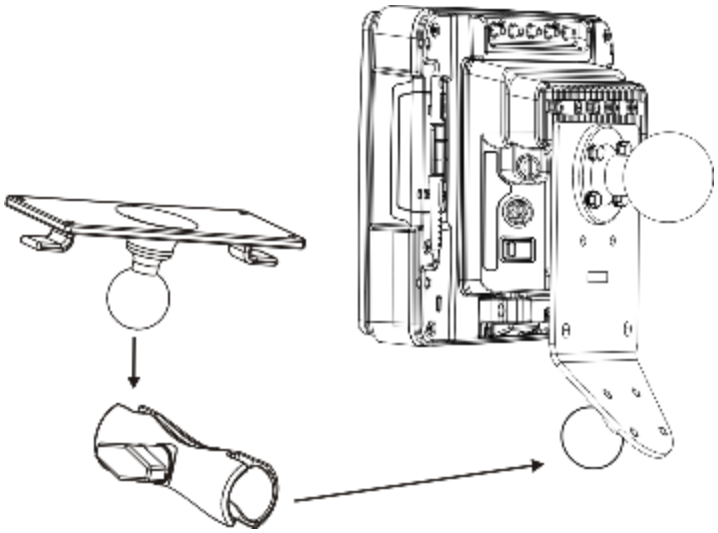


Note: Excess keyboard cable length can be looped around the hooks on the bottom of the keyboard mounting plate.

Step 6 – Attach Keyboard Assembly to Thor VM2 Assembly

Note: This step is only for a Thor VM2 with the optional external keyboard.

1. Slip the Size C RAM arm over the ball on the Thor VM2 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.

Chapter 3 - Installation - U Bracket Mount

Refer to the **Thor VM2 Reference Guide** when connecting Input/Output devices to the Thor VM2 Quick Mount Smart Dock after the Thor VM2 is mounted to a vehicle.

Note: This mounting system is designed for use with a Thor VM2 without an external keyboard.

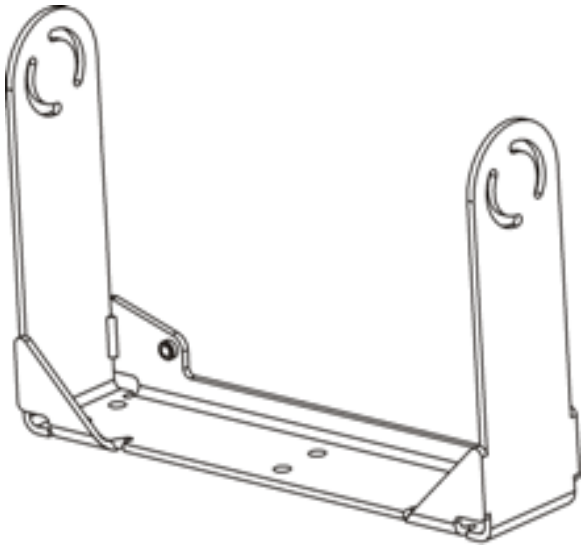
Caution: 	This device is intended to transmit RF energy. For protection against RF exposure to humans and in accordance with FCC rules and Industry Canada rules, this transmitter should be installed such that a minimum separation distance of at least 20 cm (7.8 in.) is maintained between the antenna 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.

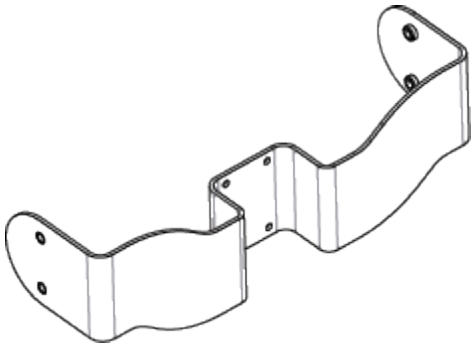
Components - U Bracket Mounting Assembly

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 VM2 in place of a previous Honeywell vehicle mounted computer, such as a VX6 or VX7.



U Bracket (only included in kits for new installations)



Adapter Bracket (includes screws, flat washers and lock washers to attach Adapter Bracket to Thor VM2 and to attach Adapter Bracket to U Bracket

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.

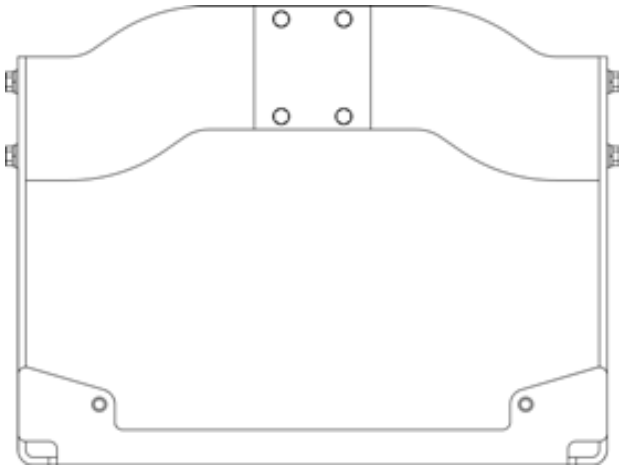
Torque Measurement

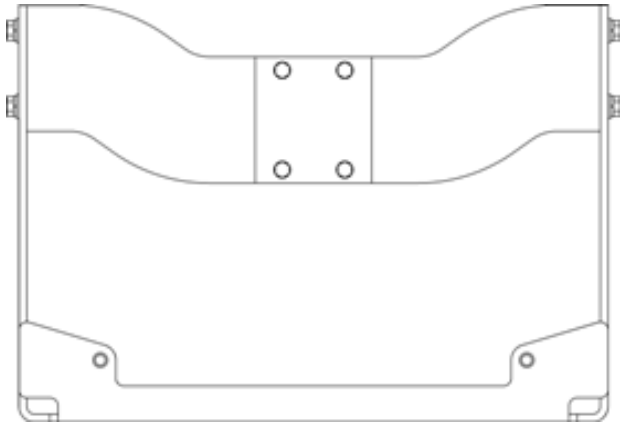
You will need a torquing tool capable of torquing to 35-50 inch pounds (1.10 N/m). Torque all screws and bolts according to the following table:

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)

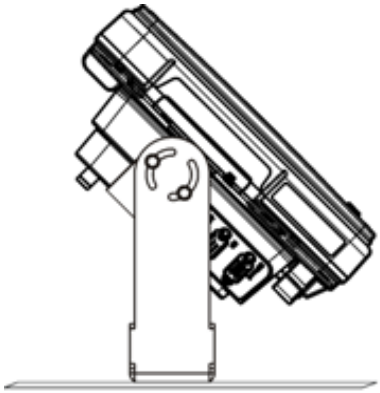
Mounting Positions

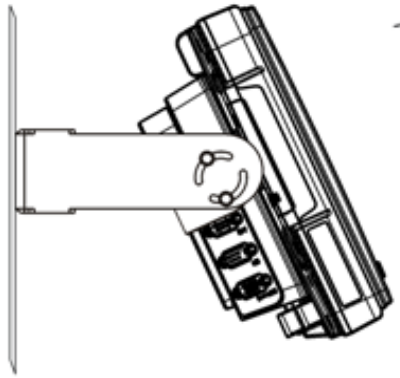
The adapter bracket can be mounted in a high or low position, depending on viewing position, as shown below.

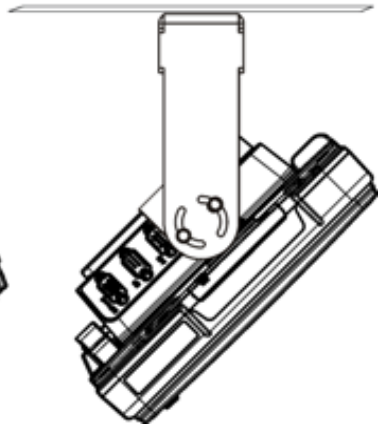




Additionally, the slotted U bracket allows the Thor VM2 to be mounted vertically or tilted forward or backward for best viewing angle.





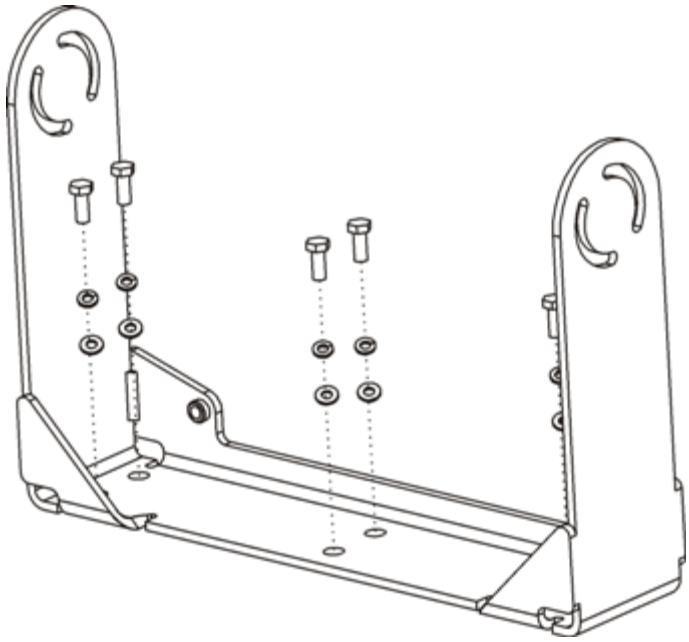


Step 1 - Install U Bracket to Vehicle

1. Position the bracket to allow access to the switches and ports on the bottom of the Thor VM2.
2. Attach the bottom mounting bracket to the vehicle mounting surface using a minimum of four 1/4 bolts (or equivalent) fasteners.

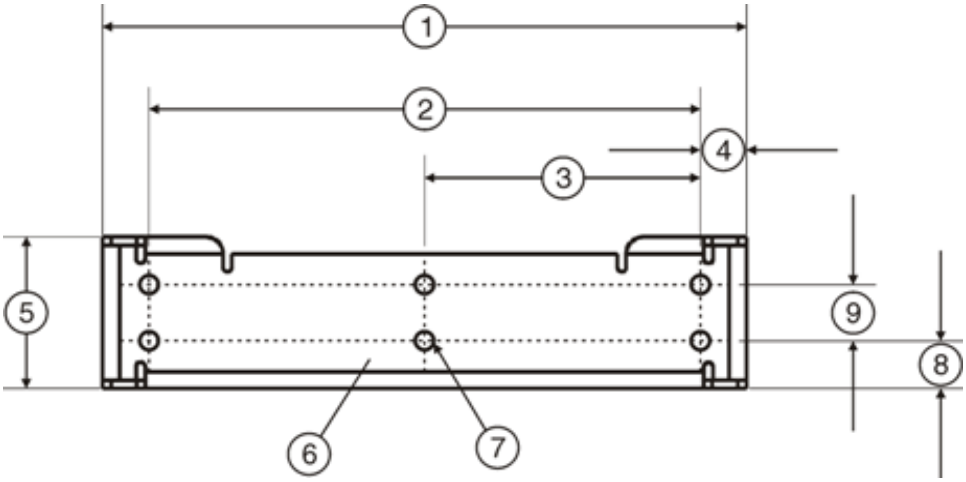
Note: 1/4 bolts and washers not included. It is recommended to use lock washers and flat washers on the fasteners.

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 VM2 bracket configuration.

Mounting Dimensions



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

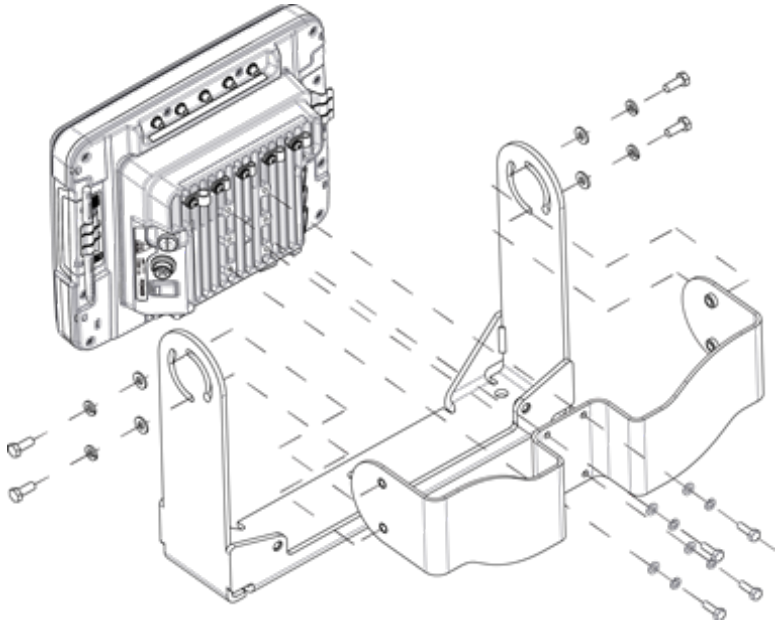
U-Bracket Footprint (Not to Scale)

Step 2 - Remove RAM Ball

If the Thor VM2 Quick Mount Smart 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 VM2 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 VM2/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 VM2 is not already installed in the dock:
    a. Locate the lip on the top rear of the Thor VM2.
    b. Slide this lip over the top of the Dock. Slide the Thor VM2 from side to side on the Dock to make sure it fully engages on the lip of the Dock. If the Thor VM2 cannot be slid side to side, the lip is engaged.
    c. Pull the quick release lever on the Thor VM2 down and push the Thor VM2 against the Dock.
    d. Release the quick release lever.
4. Adjust the Thor VM2 to the desired viewing angle.
5. Torque the 14-20 bolts to 50 in/lbs (5.6 N/m).

Step 4 - Place the Thor VM2 into the Dock

If the Thor VM2 is not already mounted to the Dock, place the Thor VM2 in the dock.

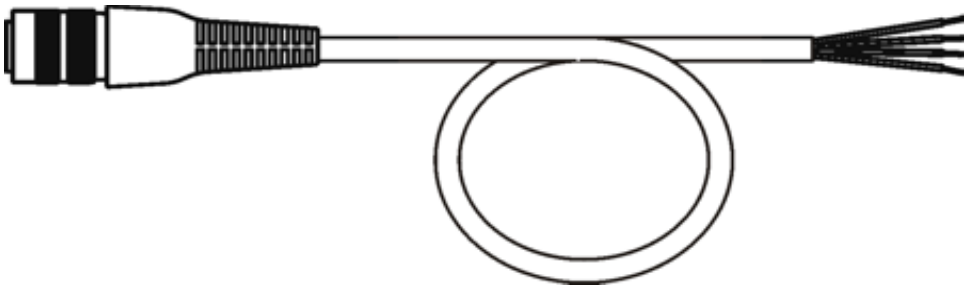
Chapter 4 - Connect Cables

There are many cables available for the Thor VM2. This section deals with those cables that are a part of the installation process, such as:

Various data and communication cables are available for the Thor VM2.

Vehicle 10-60 VDC Power Connection

Caution: 	For installation by trained service personnel only.
Caution: 	For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. This fused circuit requires a 10 Amp maximum time delay (slow blow) high interrupting rating fuse. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery positive (+) terminal. Note: For North America, a UL Listed fuse is to be used.



VM1054CABLE (14ft/4.3m, included with dock)

VM1054CABLE Wire Color	Connection
Red	DC + (10-60 VDC)
Black	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 VM2 DC input wires (Red DC+ and Black DC-) and the Blue ignition input wire are galvanically isolated. The Green ground input is used for electrostatic discharge (ESD) protection.

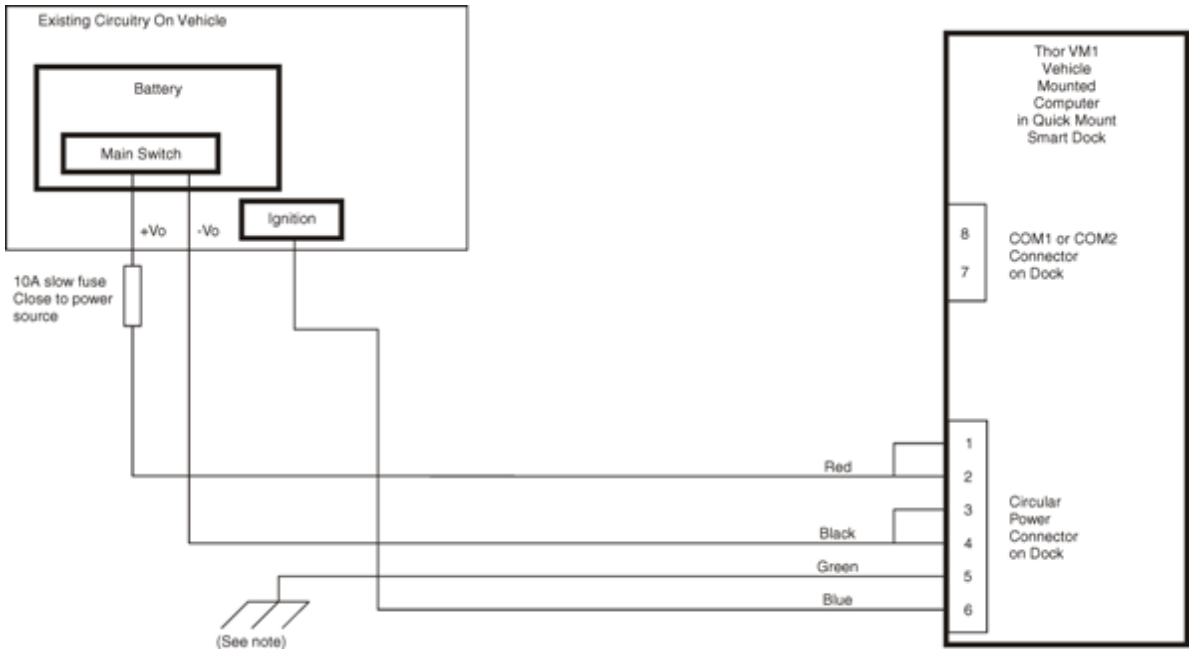
Connect Vehicle 10-60VDC

1. The Thor VM2 must not be mounted in the Quick Mount Smart 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 specified above, connect the power cable as close as possible to the actual battery terminals of the vehicle (if using unswitched power).
3. Wiring installation
   - 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.
   - Refer to the diagrams following this section for wire colors and connections:
     - Ignition Control
     - Auto-On Control
     - Manual Control
     - VX6/VX7 Adapter Cable
5. Route the power cable:
   - 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, 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.
   - 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.
5. Connect the DC power cable to the input connector on the back of the Dock.
6. Flip the power switch on the back of the Dock to On.
7. The Thor VM2 can be installed in the Dock.
8. If using the optional screen blanking feature, install the screen blanking box or switch.

Once installation is complete, remember to start the Thor VM2 and select the desired Power Configuration Mode to enable Auto-On, Ignition Control or Manual Control of the Thor VM2 boot up process. Please see the *Thor VM2 Reference Guide* for details: **Start > Settings > Control Panel > Power Configuration Mode**.

Ignition Control

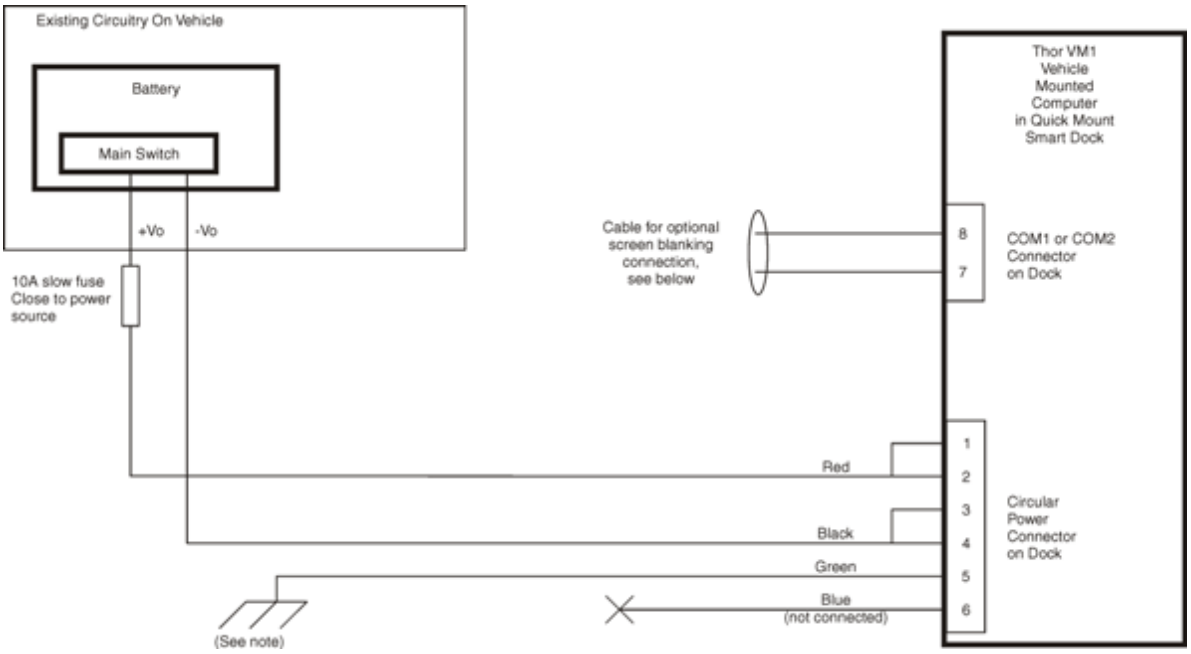
Ignition wire must be connected and the Ignition Control power mode must be selected. When switched vehicle power is available the Thor VM2 ignition signal wire can be connected (less than 1mA over input voltage range) to the switched circuit to allow the Thor VM2 to power on when the vehicle is switched on. When the vehicle is switched off, more aggressive power management settings are enabled to preserve the vehicle battery charge.



Note: If the vehicle chassis is not a suitable ground, connect the Green wire to the negative terminal (-Vo) of the power source.

Auto-On Control

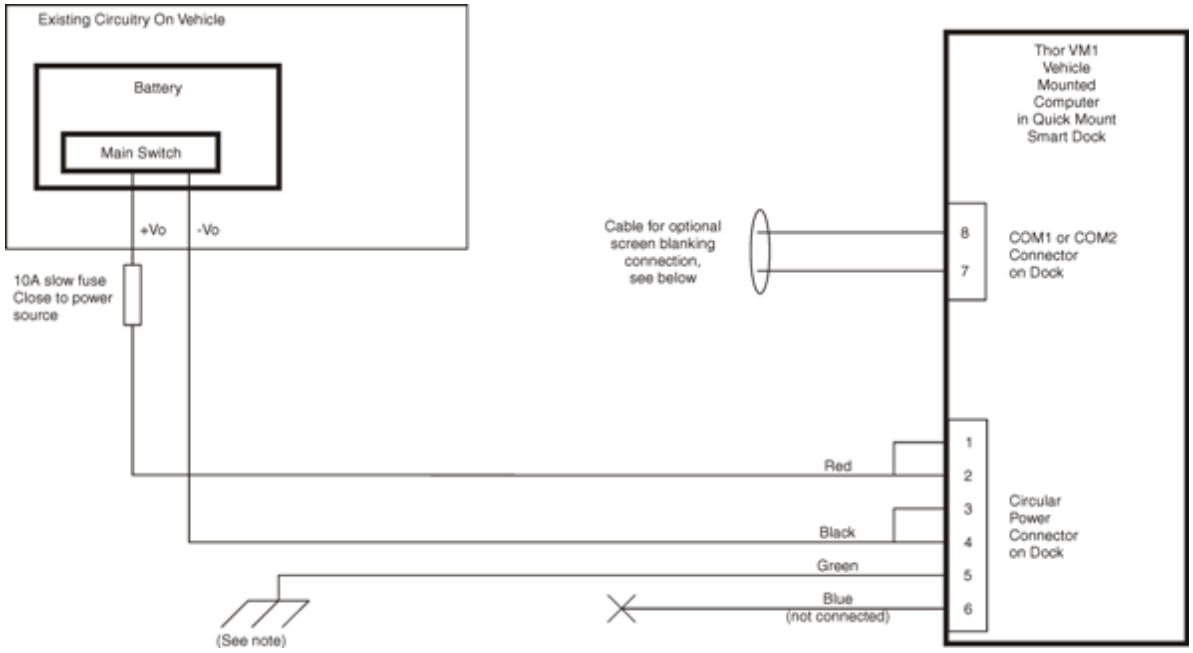
Auto-On power mode must be enabled. The vehicle supply connections should be made to vehicle switched power to allow the terminal to automatically power-up when vehicle power is switched on or when the power switch on the back of the Dock is placed in the On position. The Ignition wire is not used and should be left disconnected.



Note: If the vehicle chassis is not a suitable ground, connect the Green wire to the negative terminal (-Vo) of the power source.

Manual Control

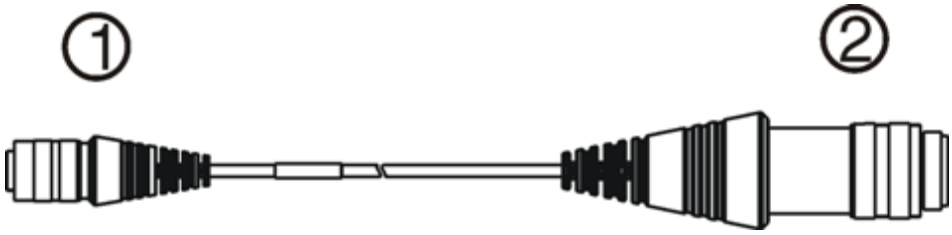
Ignition wire must be left unconnected and AC/DC power mode must be enabled.



Note: If the vehicle chassis is not a suitable ground, connect the Green wire to the negative terminal (-Vo) of the power source.

VX6 / VX7 Adapter Cable

An adapter cable is available to attach the Thor VM2 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 VM2 on the other.



1. To Thor VM2
2. To VX6/VX7 Power Supply Cable

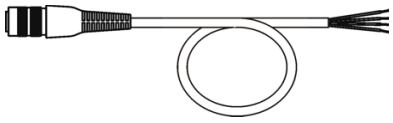
Caution:	Because the Thor supports 10-60 VDC power input, **verify input voltages** before using this adapter cable with an existing VX6 or VX7 power connection installation.

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.

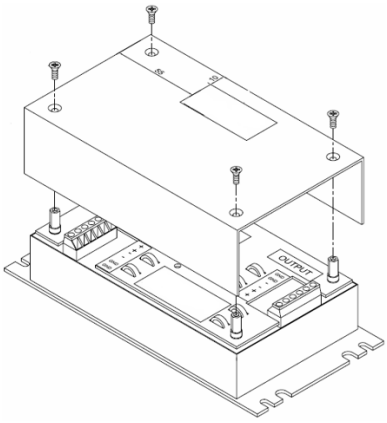
Vehicle 72-144 VDC Power Connection

This option requires DC/DC external power supply Honeywell Part no. VX89303PWRSPLY.

Caution: 	For installation by trained service personnel only.
Caution: 	For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. This fused circuit requires a 10 Amp maximum time delay (slow blow) high interrupting rating fuse. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery positive (+) terminal. Note: For North America, a UL Listed fuse is to be used.
Caution: 	The VX89303PWRSPLY 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.



VM1054CABLE
(14ft/4.3m, included with dock)



VX89303PWRSPLY

VM1054CABLE Wire Color	Connection
Red	DC + output from DC/DC Power Supply
Black	DC - output from DC/DC Power Supply
Green	Ground output from DC/DC Power Supply
Blue	Ignition Input (not connected)

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

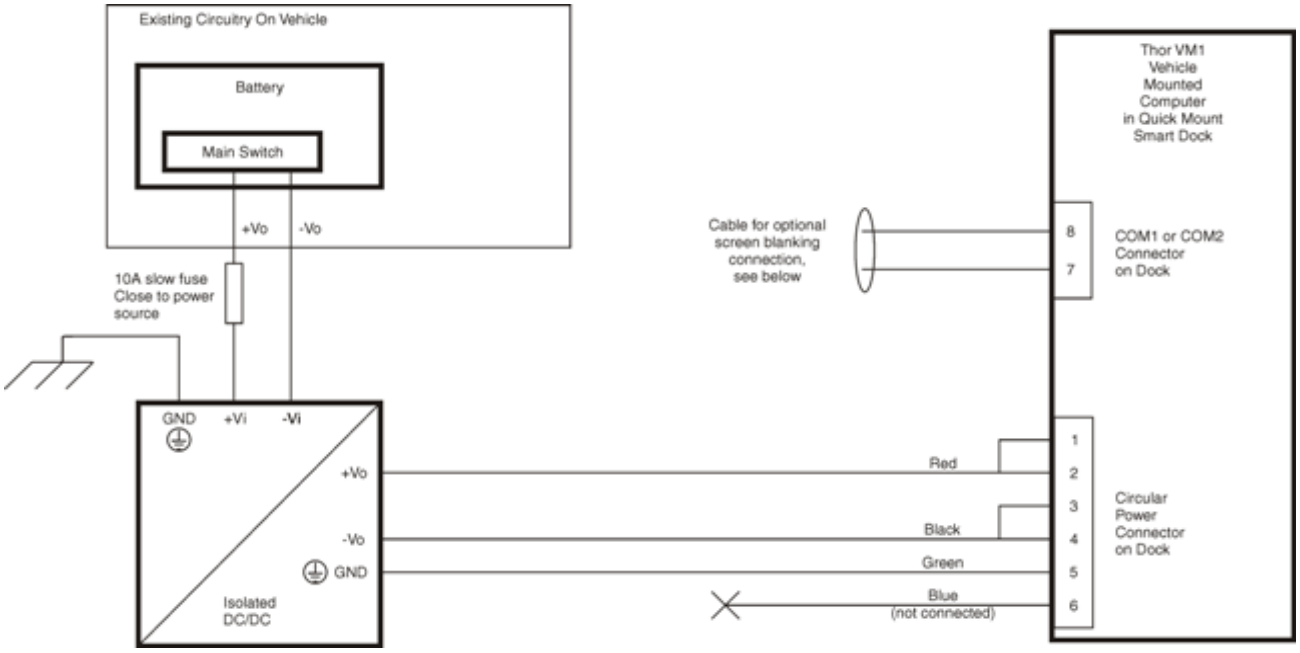
The Thor VM2 DC input wires (Red DC+ and Black DC-) and the Blue ignition input wire are galvanically isolated. The Green ground input is used for electrostatic discharge (ESD) protection.

Connect Vehicle 72-144VDC

1. The Thor VM2 must not be mounted in the Quick Mount Smart 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 specified above, connect the power cable as close as possible to the actual battery terminals of the vehicle.
3. Wiring installation:
   - The user must supply wiring from the vehicle to the DC/DC power supply.
   - 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.
   - Remove the lid from the DC to DC converter. Attach the stripped wire ends to the output side of the DC to DC converter. Attach stripped wire ends to the input side of the DC to DC converter.
   - The input and output blocks each have two + and two – minus connectors. Either connector in the block can be used to connect the matching polarity wire.
   - Use the looms and wire ties to secure all wiring then reattach the cover with the screws.
   - Connect as shown in wiring diagram.
4. Route the power cable:
   - 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, 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.
   - 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.
5. Connect the DC power cable to the input connector on the back of the Dock.
6. Flip the power switch on the back of the Dock to On.
7. The Thor VM2 can be installed in the Dock.
8. If using the optional screen blanking feature, install the screen blanking box or switch.

Once installation is complete, remember to start the Thor VM2 and select the desired Power Configuration Mode to enable Auto-On, Ignition Control or Manual Control of the Thor VM2 boot up process. Please see the *Thor VM2 Reference Guide* for details: **Start > Settings > Control Panel > Power Configuration Mode**.

Wiring Diagram



Thor VM2Screen Blanking

Prerequisite: The steps outlined in Power Cable Connection have been performed for either the 10-60 VDC Connection or the 72-144 VDC Connection.

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

Caution: 	For installation by trained service personnel only.
Caution: 	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.

Please refer to the *Thor VM2 Reference Guide* for specifications on building a serial cable for the screen blanking feature and Screen Control (in the Windows Control Panel) to configure the Thor VM2 for screen blanking.

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.

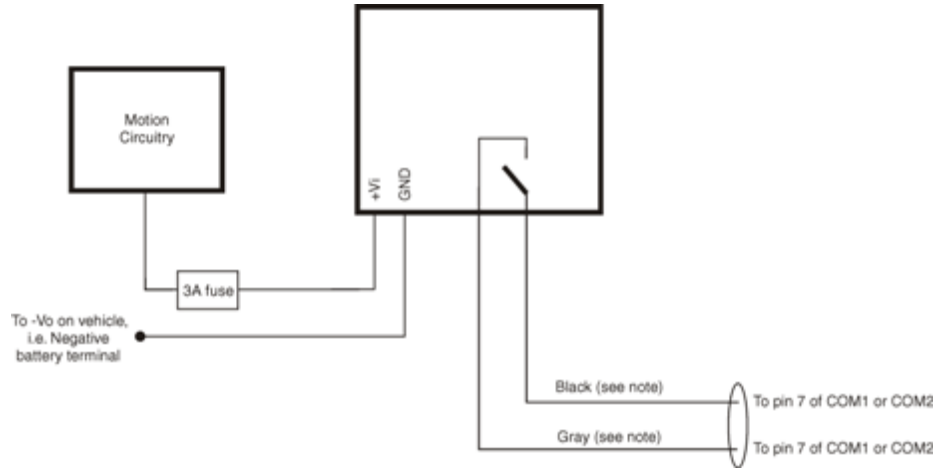
Screen Blanking Box

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 -
	These two terminals are for connecting a serial cable: • If using an optional Honeywell screen blanking cable, VM1080CABLE, connect the **gray** wire to the **switched** side of the connection and connect the **black** wire to the **unswitched** side. • If using a user-supplied cable, the cable must be constructed so that **Pin 7** (RTS) connects to **switched** side of the connection and **Pin 8** (CTS) connects to the **unswitched** 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.

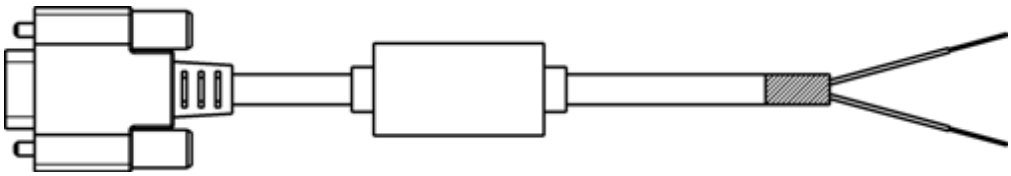
Caution:	
	Do not exceed the maximum input voltage, either 60 or 72VDC, specified on the Screen Blanking Box label when using this configuration.



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 Cable

Optional Honeywell Cable



VM1080CABLE

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

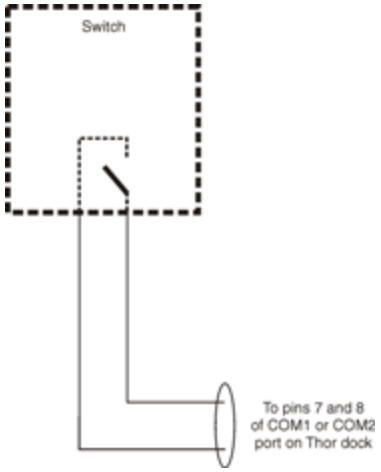
1. Connect the gray wire of the cable to the switched side of the Screen Blanking Box.
2. Connect the black wire of the cable to the unswitched side of the Screen Blanking Box.
3. Connect the D9 serial connector to either COM1 or COM2 serial port on the Thor VM2 Quick Mount Smart Dock.

User-Supplied Cable

A user-supplied cable can be used as well. Pins 7 and 8 must be connected as shown in the illustration above. No other pins are to be connected.

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.



Cable

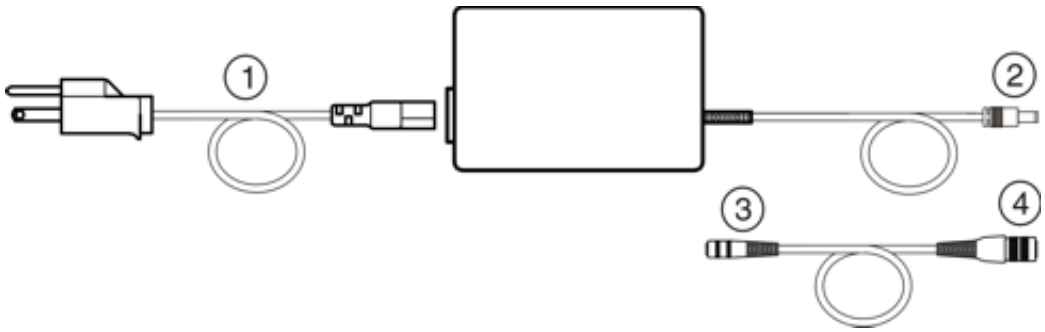
Pins 7 and 8 must be connected as shown in the illustration above. No other pins are to be connected.

External Power Supply, Optional

Note: The Honeywell-approved AC Power Supply and Adapter Cable are only intended for use in a 25°C (77°F) maximum ambient temperature environment.

In North America, this unit is intended for use with a UL Listed ITE power supply with output rated 10 – 60 VDC, minimum 15W. Outside North America, this unit is intended for use with an IEC certified ITE power supply with output rated 10 – 60 VDC, minimum 15W.

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).



1. AC Input Cable (US only)
2. DC Output Cable
3. To DC Output Cable (see above)
4. To Thor VM2

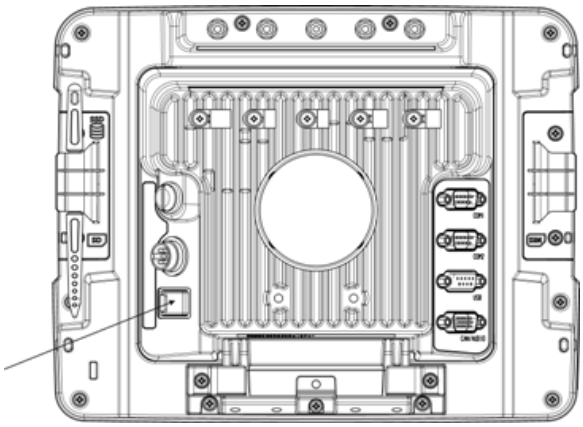
Connect External Power Supply

1. Connect the provided detachable cordset (US only, all others must provide their own cable) 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 Thor VM2 Quick Mount Smart 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. Flip the power switch on the back of the Dock to On.
6. Press the Power button on the front of the Thor VM2.

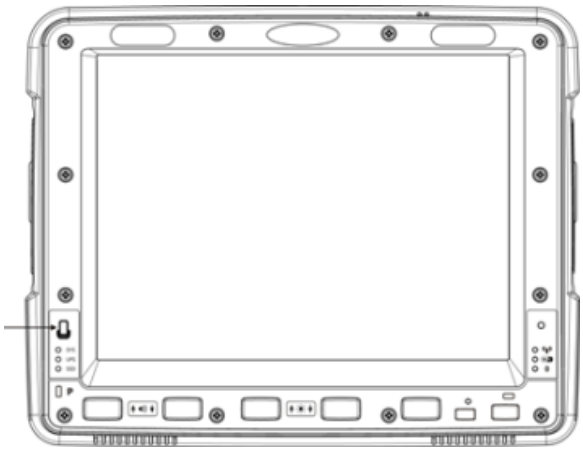
Connect Power Cable

Note: This section assumes the Thor VM2 is mounted in the Quick Mount Smart Dock.

1. Connect the power cable to vehicle power (See Vehicle 10-60 VDC Power Connection.)
2. The plug and receptacle are keyed and care must be used when connecting the cables. Tighten the nut of the plug clockwise until tight.
3. Secure the cable with a strain relief cable clamp.
4. Press the Power switch on the back of the Thor VM2 dock. Press the side of the power switch with the raised bump to pass power from the Dock to the Thor VM2.



5. Press the Power button on the front of the Thor VM2 to turn the Thor VM2 on.



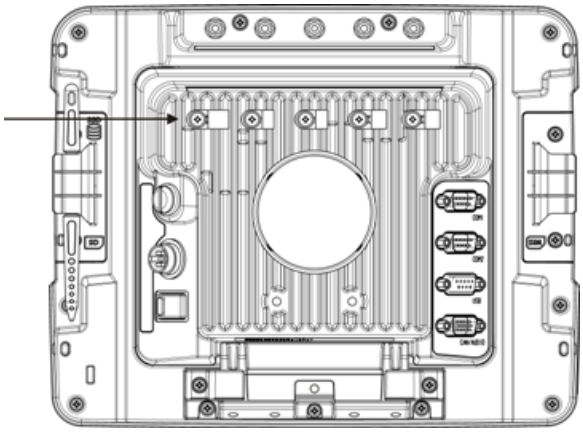
Generally, once the Dock is powered On, there is no need to power it off. The Dock power can remain On even when the Thor VM2 is not attached.

Strain Relief Cable Clamps

Equipment Required: Phillips screwdriver (not supplied by Honeywell)

There are five strain relief cable clamps secured to the Thor VM2 Quick Mount Smart Dock.

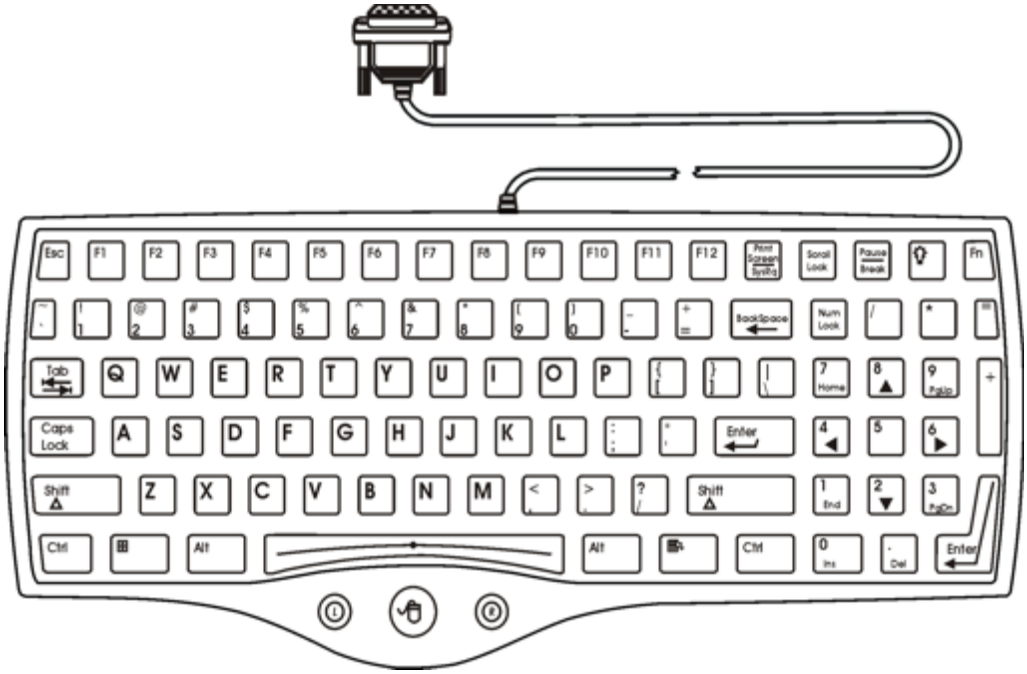
Use the strain relief clamps to secure audio, power, and I/O cables attached to the Thor VM2 Dock.



1. Remove the strain relief clamp from the Thor VM2 by turning the screw counterclockwise. Put the screw aside in a safe location.
2. Slide the strain relief clamp over the cable.
3. Using a Phillips screwdriver and the screw that was removed, refasten the clamp holding the cable to the Quick Mount. Do not stretch the cable. Leave enough slack in the cable to allow it to be connected and disconnected easily when needed.
4. Continue in this manner until all cables are secured to the Thor VM2 Dock.

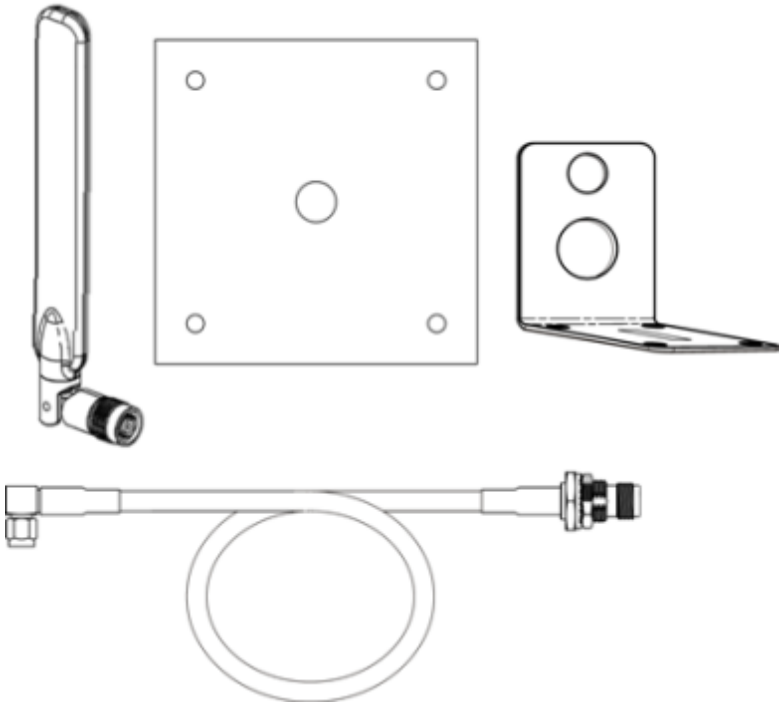
Keyboard Cable

The external keyboard is a USB keyboard. The keyboard has a D9 connector which attached to the USB port on the Thor VM2 Quick Mount Smart Dock.



Remote Antenna Installation Kit

802.11 Remote Mount Antenna

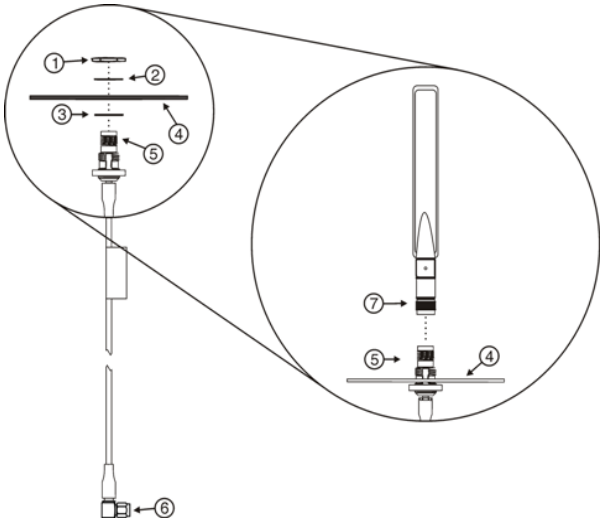


The Remote Antenna Installation Kit consists of two brackets (base plate and right angle), cable, and antenna. Tools are not included.

The desired remote antenna bracket is mounted on the top of a forklift, truck or other vehicle and cabled to the Thor VM2 inside the vehicle.

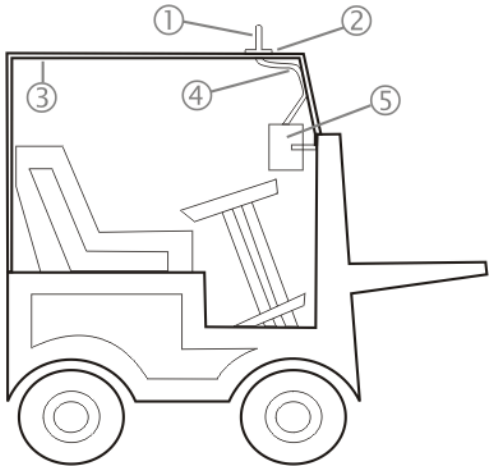
The Vehicle Remote Mount Antenna cannot be used by devices with an internal antenna.

Components and Mounting Diagram



1. Nut
2. Washer
3. Washer
4. Base Plate Bracket
5. To Antenna
6. To Thor VM2 Antenna Connector
7. Antenna
8. Right Angle Bracket (not shown)

Typical Installation



1. Antenna
2. Mounting Bracket (802.11 kit only)
3. Vehicle Safety Cage
4. Cable
5. Vehicle Mounted Thor VM2

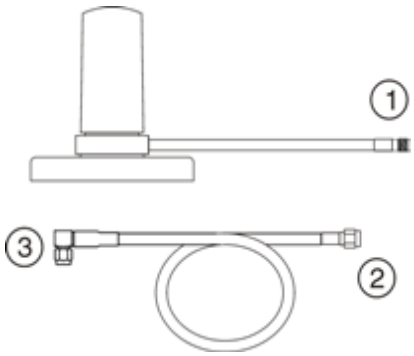
Mounting Instructions

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 the Thor VM2 requires 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 VM2.
3. Secure the whip antenna to the mounting bracket.

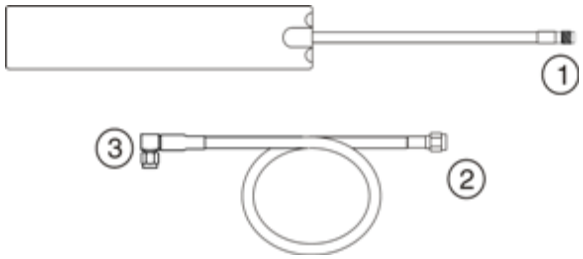
4. Connect the antenna cable to the whip antenna.
5. Use cable ties to secure the coaxial cable to the vehicle as necessary. Make sure the cable is routed so it is not damaged by any moving parts of the vehicle.
6. Repeat these steps for the second 802.11 antenna.

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

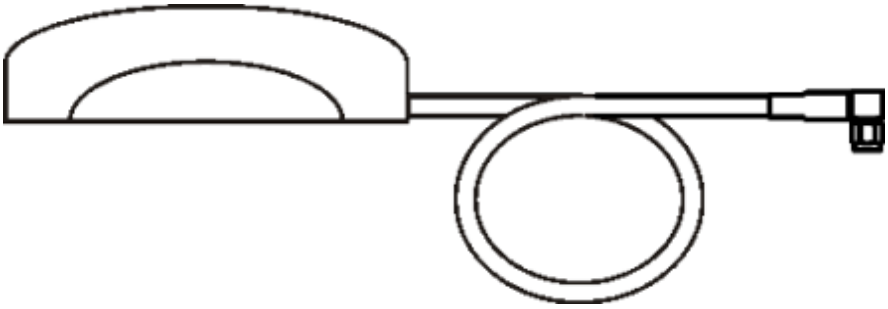
1. To extension cable
2. To antenna
3. To Thor VM2 antenna connector

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 VM2 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 connector on the vehicle mounted Thor VM2.
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 VM2 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 antenna connector on the vehicle mounted Thor VM2.
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.

Chapter 5 - 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.

Web form: www.hsmcontactsupport.com

You can contact our technical support team directly by filling out our online support form. Enter your contact details and the description of the question/problem.

Telephone: www.honeywellaidc.com/locations

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

Product Service and Repair

Honeywell International Inc. provides service for all of its products through service centers throughout the world. To obtain warranty or non-warranty service, please visit www.honeywellaidc.com and select **Support > Contact Service and Repair** to see your region's instructions on how to obtain a Return Material Authorization number (RMA #). You should do this prior to returning the product.

Limited Warranty

Honeywell International Inc. ("HII") warrants its products to be free from defects in materials and workmanship and to conform to HII's published specifications applicable to the products purchased at the time of shipment. This warranty does not cover any HII product which is (i) improperly installed or used; (ii) damaged by accident or negligence, including failure to follow the proper maintenance, service, and cleaning schedule; or (iii) damaged as a result of (A) modification or alteration by the purchaser or other party, (B) excessive voltage or current supplied to or drawn from the interface connections, (C) static electricity or electro-static discharge, (D) operation under conditions beyond the specified operating parameters, or (E) repair or service of the product by anyone other than HII or its authorized representatives.

This warranty shall extend from the time of shipment for the duration published by HII for the product at the time of purchase ("Warranty Period"). Any defective product must be returned (at purchaser's expense) during the Warranty Period to HII factory or authorized service center for inspection. No product will be accepted by HII without a Return Materials Authorization, which may be obtained by contacting HII. In the event that the product is returned to HII or its authorized service center within the Warranty Period and HII determines to its satisfaction that the product is defective due to defects in materials or workmanship, HII, at its sole option, will either repair or replace the product without charge, except for return shipping to HII.

EXCEPT AS MAY BE OTHERWISE PROVIDED BY APPLICABLE LAW, THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER COVENANTS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, ORAL OR WRITTEN, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

HII'S RESPONSIBILITY AND PURCHASER'S EXCLUSIVE REMEDY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT WITH NEW OR REFURBISHED PARTS. IN NO EVENT

SHALL HII BE LIABLE FOR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, AND, IN NO EVENT, SHALL ANY LIABILITY OF HII ARISING IN CONNECTION WITH ANY PRODUCT SOLD HEREUNDER (WHETHER SUCH LIABILITY ARISES FROM A CLAIM BASED ON CONTRACT, WARRANTY, TORT, OR OTHERWISE) EXCEED THE ACTUAL AMOUNT PAID TO HII FOR THE PRODUCT. THESE LIMITATIONS ON LIABILITY SHALL REMAIN IN FULL FORCE AND EFFECT EVEN WHEN HII MAY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH INJURIES, LOSSES, OR DAMAGES. SOME STATES, PROVINCES, OR COUNTRIES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

All provisions of this Limited Warranty are separate and severable, which means that if any provision is held invalid and unenforceable, such determination shall not affect the validity of enforceability of the other provisions hereof. Use of any peripherals not provided by the manufacturer may result in damage not covered by this warranty. This includes but is not limited to: cables, power supplies, cradles, and docking stations. HII extends these warranties only to the first end-users of the products. These warranties are non-transferable.

The duration of the limited warranty for the Thor VM2 is 1 year.

The duration of the limited warranty for the Thor VM2 Quick Mount Smart Dock is 1 year.

The duration of the limited warranty for the Thor VM2 Vehicle Mount Assembly is 1 year.

The duration of the limited warranty for the Thor VM2 internal UPS battery is 1 year.

The duration of the limited warranty for the Thor VM2 AC power supply and cables is 1 year.

The duration of the limited warranty for the Thor VM2 DC-DC Converter is 1 year.

The duration of the limited warranty for the Thor VM2 cables (USB, Serial, Communication, Power) is 1 year.

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