Trimble – TVG 680 Installation Guide
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This installation guide provides an overview and installation instructions for the TVG 680 product.

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Trimble TVG 680 device contains:
- GPS chip set
- Wireless (cellular) carrier modem
- Internal antenna
- ECU/DataBUS Interface (VBUS)
- Internal accelerometer to detect motion
- Internal 1000 mAh battery
- IP67 sealed rugged enclosure

The TVG 680 device will:
- Provide asset location
- Report engine hours
- Wake on motion or asset being turned on
- Enable trip reporting
- Diagnostic Trouble Codes (DTCs) and Asset BUS information
TVG 680 Serial Number

The TVG 680 serial number is located here on the label.

This is the alphanumerical identifier that will be entered into the post installation testing app. It is also provided to the customer for identification in Trimble systems.

FCC ID  RI7LE910NAV2
TVG 680 Installation Parts Kit

(10) 8” zip ties – *Purpose* - securing TVG 680 cable from device location to points of power/ground connection and VBUS interface connection

(2) 15” black zip ties - *Purpose* - for securing TVG 680 device when the preferred screw-mount method cannot be used

(2) #10 x 3/4” self-drilling hex head bolts – *Purpose* - securing TVG 680 to chassis/frame of equipment or asset

(1) #8 x 1/2” self-drilling pan-head screw - *Purpose* - securing TVG 680 black wire to chassis ground if existing ground terminal or ground bolt cannot be located

(4) #6 x 1/2” self-drilling screws - *Purpose* - for securing square flange 9-pin VBUS cable plug (when needed)

(1) 18-22awg Red #8 Ring terminal - *Purpose* - securing TVG 680 black wire to appropriate chassis ground with #8 star washer and #8 x 1/2” self-drilling pan head screw

(2) 18-22awg Red 5/16” Ring terminal - *Purpose* - For securing TVG 680 power and ground sources to battery or existing bolt on chassis (if applicable)

(1) 5/16” star washer - *Purpose* - used in conjunction with 5/16” ring terminal when grounding to machine chassis

(1) #8 star washer - *Purpose* - used in conjunction with #8 x 1/2” screw and #8 ring terminal when grounding to chassis

(1) 3/8” ID sealing grommet - *Purpose* - in the event a hole must be drilled to route TVG 680 cable, a grommet will be used to seal hole and safely run cable through metal

(2) 18-22awg Red marine-grade heat-shrink butt connectors - *Purpose* - for securing fuse holder to Red (+) constant power wire and White (+) key-controlled power wire

(2) In-line Fuse Holder – *Purpose* - to be installed on each of the Red and White wires of TVG 680 power harness. Must be installed no more than 18” from power source

3 AMP Fuse – *Purpose* - to be inserted into the Fuse slot in above Fuse Holder
The TVG 680 breakaway harness will have a 34-pin rectangular shaped connector on one end and five round accessory plugs on alternate end. The 34-pin Molex connector on the cable will plug into the corresponding 34-pin connector on the TVG 680.

ACCY-main power cable will be plugged into the port labeled “ACCY”

VBUS-DataBUS cable (9-pin round or 3-pin triangle) will be plugged into the port labeled “VBUS”

AUX2-will not be used

ELD will not be used
TVG 680 – Power Cable

The main power cable for TVG 680 has 3 wires:

- Red - constant 12/24 volt (with 3A fuse)
- White - Key/Switch controlled 12/24 volt (with 3A fuse)
- Black - chassis ground

The main power cable for TVG 680 will be plugged into the port labeled “ACCY” coming from the TVG 680 device.
TVG 680 – BUS Diagnostic Cables

The TVG 680 will have two variants of the VBUS diagnostic cables:

- 9-pin round (tractors, cranes, lifts and other assets)
- 3-pin triangular (pumps)
Attach the included fuse holders to each of the Red and White wires with the included red heat-shrink butt connectors and insert the included 3amp fuses.

Secure wire/butt connector assembly with electrical tape.

Make sure to heat-shrink the butt connectors to provide a water/moisture resistant connection.

Apply the included tamper resistant stickers to each of the fuse holders along with (1) 8” zip tie to deter or identify tampering.
**TVG 680 – Wiring**

**POWER CONNECTIONS**

The **RED** wire = **Constant** power (+12 to 24 VDC), tied into (+) DC voltage source that has voltage at all times. This wire should always be fused at 3 amps with included fuse holder and fuse

(Example. + battery post, B+ stud at alternator or a wire on asset that has constant voltage).

The **WHITE** wire = **switched** power (+12 to 24 VDC). Tied into the key or switch controlled power source that has (+) voltage in both the Key ON and Crank/Start position (called “True Ignition). This wire should always be fused at 3 amps with included fuse holder and fuse

The **BLACK** wire = chassis **Ground** (-) with small ring terminal, star washer and self-drilling screw OR with larger ring terminal and larger star washer to (-)negative battery post/terminal or chassis grounded bolt/stud

**BUS/DIAGNOSTIC CONNECTIONS**

9-pin VBUS Y cable- for tractors, cranes and assets with round 9-pin round Deutsche VBUS/DataBUS connector

3-pin VBUS Y cable-for pumps and assets with 3-pin triangular VBUS/DataBUS connector
TVG 680 - Device Mounting

**Step 1:** Once suitable mounting location for device has been identified, place TVG 680 in proposed location and mark mounting holes.

**CAUTION** Make sure there are no wire harnesses, hydraulic lines or hoses on other side of mounting surface that could be damaged during drilling.

**Step 2:** If needed, using a 11/64” drill bit, drill (2) pilot holes for TVG 680 mounting holes

**Step 3:** Mount TVG 680 device with included #10 x ¾” self-drilling 5/16” hex head screws

**Optional** - when it is possible, through-bolting with a #10 bolt and Nyloc nut is also acceptable
Post Installation Testing
Launch the FM Installer App

From either an Android based tablet or from the TDI600 hard mounted tablet, TAP the FM Installer app icon to launch the hardware test.
If you are a Trimble Authorized Technician enter the username and password that has been provided to you by Trimble, if you are a customer enter the username and password that was provided to you by your administrator.
Select Install Test and Allow Bluetooth

1. TAP Install.

2. Allow Bluetooth
Enter Installer and SR/Task Details

3. Enter **1. Installer ID**

4. **TAP NEXT.**

5. Enter **Service Request Number**

6. **Enter Task Number**

7. **TAP NEXT.**
Ensure that **1. TVG680** is selected

2. Tap **NEXT**
To scan the serial number bar code on the device **TAP Start Scanner**

2. **Scan** the device IMEI or MEID SN bar code on the device or hand enter it (not recommended)

**TAP 3. NEXT** once successfully scanned
Install the Hardware

NOW Install the device and all required hardware **BEFORE** hitting **NEXT**

Perform the physical installation of the sensor and power it up.

Press Next when this is completed.
The device will connect to the tablet over Bluetooth and begin the serial number verification process. This should take about **10-20 seconds** to complete.

If the device fails discover the device try hitting the **BACK** in the top right corner. If the device fails discovery after hitting **BACK** proceed to the **Trouble Shooting: Bluetooth** steps at the back of this guide.
Once the app confirms the device’s Serial Number Tap **NEXT**.

If the Serial Number does **not confirm** on this step, hit the **BACK** button and perform a second rediscovery of the device.

Once confirmed tap **NEXT**
The device will then scan the hardware to verify if the cellular connection, GPS and if the device is reporting properly to the Trimble server, this typically takes about 20 seconds to complete.

If any of the above aspect fail the FT will hit **FIX** to see repair recommendations and to reboot the hardware as necessary.
Once the device successfully verifies functionality of all specs TAP NEXT
To perform the **Ignition Test**, follow the prompts and **tick the boxes** with your finger as instructed.

1. **First, Turn the KEY to the ON position**, tick the top box.

2. Then, **keep the key in the on position** and then tick the next box. Follow the same procedure to test ignition off.
1. At Step #4 of the ignition test make sure that the engine is running before selecting the forth step of this test so that the device can read vehicle diagnostics information off the engine bus, this step may take up to 5 minutes to complete.

2. If the device is successful in reading data from the bus you will see the Vehicle data read successfully acknowledgement, if so TAP NEXT.
3. If the devices fails to read vehicle diagnostics click the **Fix** button for recommendations on how to resolve the issue.

4. Then select **RETEST VD** to test again.

5. If the devices fails the vehicle diagnostics portion of this test after multiple attempts **NEXT** can be selected to proceed past this testing step.
If **NEXT** is selected it is required to call Trimble Support (see page 71) to get support help to resolve the vehicle diagnostics issue.

In the popup enter the Support Agent’s Name in the space provide and hit **OK**.
If **Heavy Duty JPOD device** is being installed the tech will be required to enter part number of vehicle diagnostics cable that is being installed.

To do so, it is recommended to **SCAN** the bar code on the outside of the bag that the cable is shipped in.

Once completed, **Tap NEXT**
With the vehicle running the device will attempt to read the VIN Number off the bus, if the VIN that is auto read from the vehicle is abbreviated or incorrect please ensure that it is entered manually by using the keyboard. If it cannot read the VIN, **TAP Start Scanner** to scan the VIN sticker or hand enter the full 17 digit VIN number. Once entered **TAP NEXT**.

*It is NOT recommend to hand enter the VIN number if it is able to be scanned.*
1. With the engine running **verify** that the device is reading Engine RPMs.

2. Enter all of the required specific information: the vehicle label **from the customers vehicle list**, plus the license plate and year, make and model of the vehicle which will in turn update the Trimble server.
Verify Odometer Reading

1. Engine Hours, if unknown or not visible entered a value of 1
And 2. verify the there is an odometer reading

Once completed 3. TAP NEXT, an entry in each field is required.
*NOTE - If the vehicle information is in the Trimble database this section may auto populate most of the vehicle information.
The Vehicle will then associate with the device (sensor) in Trimble’s server which takes about 10 to 20 seconds.
If the odometer is **NOT** automatically read by the device enter it into the device at this step by selecting **YES**, if it is automatically read off the bus select **NO**.

* **NOTE** - if the odometer is **automatically** read from the vehicle bus **but is not accurate** please **do not change it**.
If the odometer reading is **ZERO** off the bus and **YES** is selected, **1. hand enter the new Odometer value and select either Miles or KM**

**2. TAP NEXT.**

*NOTE:* If there is an odometer reading on the line above the entry field press **SKIP**
1. Make a selection on if a Statsensor input was connected to the device to begin input testing

2. If YES was selected click the INPUT # by wire color of the first input to test.

3. Then tap TEST to initiate testing the input
If a hard mounted TDI 600 Tablet is being installed with FieldMaster Logs select **YES** or select **NO** if a tablet is not being installed.

2. TAP Continue.
The Summary screen will show all results of the test, **TAP FINISH** to send these results to the Trimble server.
If you are in marginal cellular coverage or the Wi-Fi connection is poor the tablet may fail to send the results to the server, if the results cannot be sent you will see the screen the above screen.

If so, try to establish a good cellular or Wi-Fi connection to the tablet and hit **Retry**.
If you are unable to send the results to the Trimble server after multiple attempts, you will see the above pop up. Hit **OK** and proceed to **Syncing Pending Installs** on page 64 of this guide.
1. In the Acknowledgement of Service section, indicated if the customer is on site from the dropdown and enter the install date.

2. Then enter the customer’s first and last name and your first and last name.

3. Once complete, TAP SAVE.
Global Customer Support:

For Technical Support please utilize any one of the options based on your location:

North America: 1-877-428-7623 (option 1)
UK: +44(0)845 337 1661
Europe: +44 (0) 1332 267 600
Australia: 1 300 255 477