TITAN GATEWAY

INSTALLATION & OPERATION MANUAL
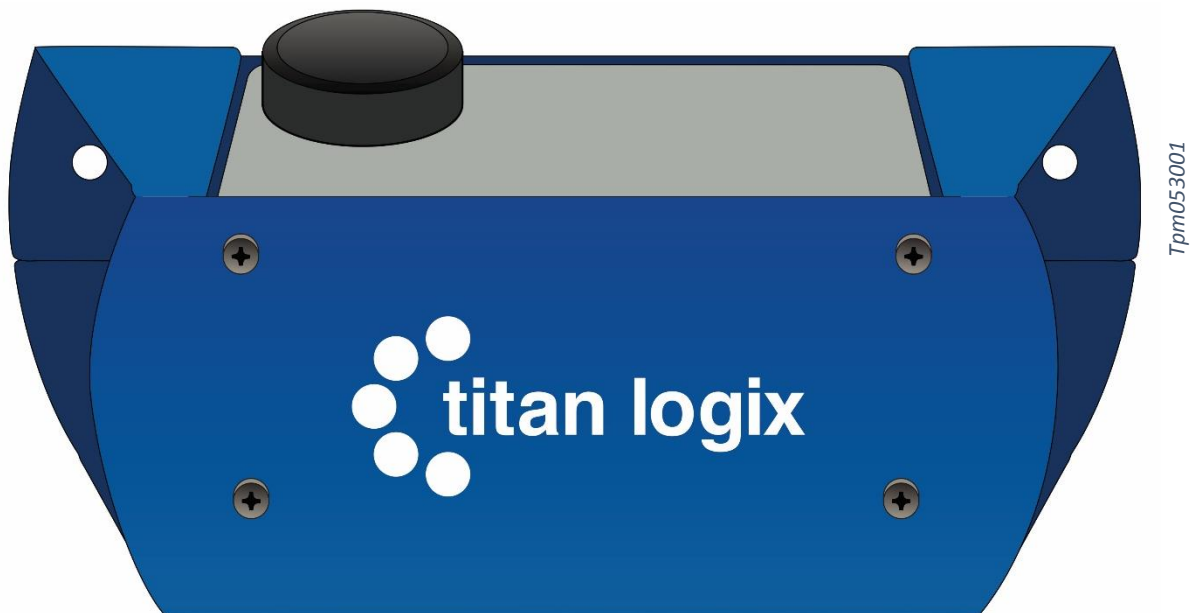

Figure 1 – Titan Gateway

Tpm053001

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FLUID MANAGEMENT SOLUTIONS

CUSTOMER SUPPORT

24 Hour Technical Support Line

1-877-462-4085

Titan Logix provides 24 hour technical support for their products. Call the technical support number:

- to arrange a service call
- if you have immediate questions regarding operations and installation
- if you have a request for documentation and/or software
- technical assistance

RETURNS FOR REPAIR, REPLACEMENT, OR CREDIT

Inside Sales (8:00-4:30 Mountain Daylight Time)

1-877-462-4085

!	**NOTE** **Returned product for repair, replacement, or credit, must be accompanied by a Titan Logix generated RMA number.**

To generate an RMA number:

1. Call the Inside Sales number to speak with a representative and obtain an RMA number
2. Provide the serial number of the item with a description of issue and expected resolution
3. Describe the issue and indicate whether the item is defective, missing components, not suitable for the intended use, or purchased in error
4. Indicate the expected resolution (repair, replacement, return)
5. Return the item together with the RMA number to the indicated Titan service facility

When speaking with your Titan representative, please indicate whether the item is still under warranty.

Shipping cost to and from a Titan Logix service facility is the responsibility of the customer unless the product is under warranty. If the product is under warranty, the freight cost to Titan is incurred by the customer. From Titan, the cost is incurred by Titan.

All returns for credit are subject to a 20% restocking fee.

INTRODUCTION

This manual provides information specific to the Titan Gateway (hereafter referred to as the Gateway) only.

This manual describes the operation and maintenance of the Gateway together with the TD80 and Finch II systems. For complete installation and programming details on the TD80 Level Gauging System, refer the TD80 product manual, TPM 001 and Finch II product manual, TPM 010.

Installation and operational information pertaining to optional equipment or peripheral systems will not be included in this manual. Refer to the vendor supplied documents for more information.

This guide is intended to assist the user on the installation, use, and maintenance, of the Titan Gateway, under normal working conditions. Operations outside the scope of this guide or specialized installations will require further documentation. Please contact your nearest Titan Logix service facility with your requirements.

It is essential that this manual be read and understood for proper installation and operation of your new Gateway system.

WARRANTY

Please see our Terms and Conditions for details about our product warranty.

There are no serviceable parts in this device. A violated warranty seal will render any warranty null and void.

DISCLAIMER

The information in this document is subject to change without notice. Titan Logix Corp. makes no representations or warranties with respect to the contents hereof.

PROPRIETARY INFORMATION

The Information disclosed herein contains proprietary rights of Titan Logix Corp. Neither this document nor the information disclosed herein shall be reproduced or transferred to other documents, or used or disclosed to others for manufacturing purposes, or for any other purpose except as specifically authorized in writing by Titan Logix Corp.

SAFETY

The product must be installed and operated in accordance with Titan manuals, application notes, and all other relevant publications. Only qualified personnel familiar with the installation and operation of this equipment should install, adjust, operate, or service this equipment. Failure to observe this warning could result in bodily injury or loss of life.

The Gateway system is not approved for use in hazardous locations. Do not operate, install, or repair the system where flammable gasses and/or fumes may be present.

Observe all federal, state/provincial and local safety standards and industry recommended practices.

Turn vehicle power off before any installation or maintenance.

This manual will use the following standard safety terms and conventions to indicate conditions:

⚠	**WARNING** **Indicates a hazardous situation which, if not avoided, could result in death or serious injury.**

⚠	**CAUTION** **Indicates a hazardous situation which, if not avoided, could result in moderate injury and/or property damage.**

!	**NOTE** **Indicates an important message not related to personal injury or property damage.**

Radio Frequency (RF) Safety

Notice regarding Compliance with FCC and Industry Canada Requirements for RF Exposure

The antenna intended for use with this unit meets the requirements for mobile operating configurations and for fixed mounted operations, as defined in 2.1091 of the FCC rules for satisfying RF exposure compliance.

Compliance of the device with the FCC and IC rules regarding RF Exposure was established and is given with the maximum antenna gain as specified above for a minimum distance of 20 cm (8 in) between the devices radiating structures (the antenna) and t e body of users.

SECURITY

Titan recommends the following steps to protect the security of your system:

- Change the Wi-Fi password from the factory setting
- Keep all passwords documented and secure. Password must use a combination of letters, numbers, and symbols and be at least 8 characters long with no spaces or the special characters: < > & '

SECURITY

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GATEWAY SYSTEM OVERVIEW

The Titan Gateway is used to track your vehicle when in operation. The Gateway streams information on vehicle speed, stops, and position as well as receiving system information from the TD80 Level Gauge and Overfill Protection System. The Gateway uploads this information to a cloud-based server for data tracking and analysis.

GATEWAY COMPONENTS
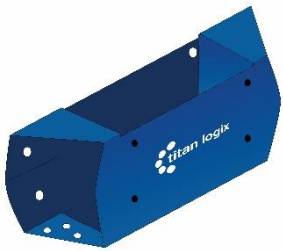
Gateway Mounting Bracket

The mounting bracket acts as a secure seat for the Gateway module. It is mounted to a secure position on the vehicle and is to be installed as per the instructions provided in this manual.

Figure 2 – Gateway Mounting Bracket

Gateway Module

The Gateway module wirelessly transmits position and motion information of the vehicle, as well as gathering and transmitting data from the TD80 and Finch II components. The module sits securely inside the mounting bracket and connects directly to the TD80 and Finch II System via the Interconnect Cable.

Figure 3 – Gateway Module

Interconnect Cable

The interconnect cable is a wire cable that is supplied to connect the Gateway module to the Finch II display through a third party junction box.

Figure 4 – Interconnect Cable

Module Mounting Bolts

The module mounting bolts are supplied in order to secure the Gateway module to the mounting bracket.

Figure 5 – Module Mounting Bolts

While the Gateway gathers and streams positioning data to the cloud, the TD80 and Finch II System work together to display payload information. The TD80 and Finch II System are assumed to be in place before installation of the Gateway.

TD80 COMPONENTS

Tpm053006

TD80 Transmitter

The TD80 transmitter generates and processes the Guided Wave Radar signals to determine liquid level in a tank. The TD80 is mounted on the tank top and connected to the probe. TD80s are available in two versions, dual rod and coaxial probe for compatibility with a wide range of liquids.

Figure 6 – TD80 Transmitter

Tpm053007
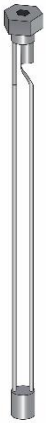
Probe

The probe guides the transmitted pulse and reflection from the surface of the liquid. Probes are available in dual rod or coaxial versions and require a matching transmitter type. The probe is mounted on the tank top and is connected to the bottom of the transmitter. Dual rod probes are designed for viscous liquids. Coaxial probes are used mostly for tanks containing products like aviation fuel.

Figure 7 – TD80 Probe

Tpm053008

Finch II Display

The Finch II Display is an external use, numeric display of volume information, alarms and system error codes from the TD80 transmitter. Various alarm and error conditions are detected by the transmitter and display. These alarm states control four internal relays for alarm annunciation, high level shutdown and low level prevention.

Figure 8 – Finch II Display

COMPONENT IDENTIFICATION AND LOCATION

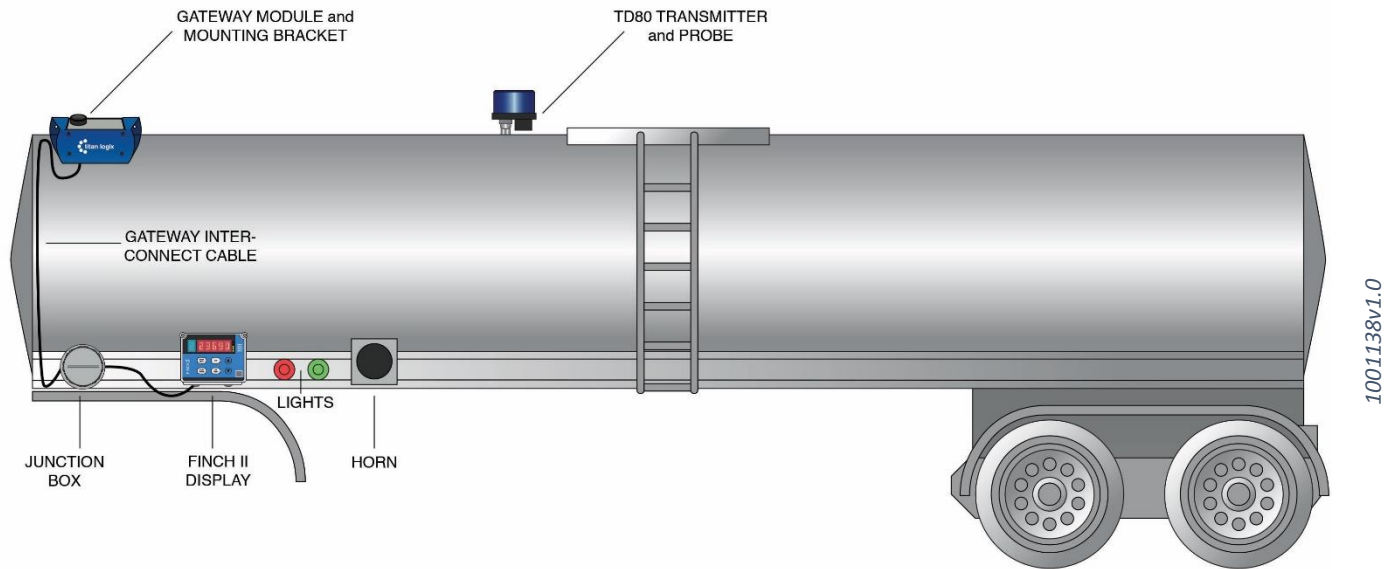*Figure 9 – Component Location*

FEATURES AND SPECIFICATIONS

Features

(viewed from the bottom of the Gateway module)

1. model number
2. serial number
3. IMEI
4. SSID
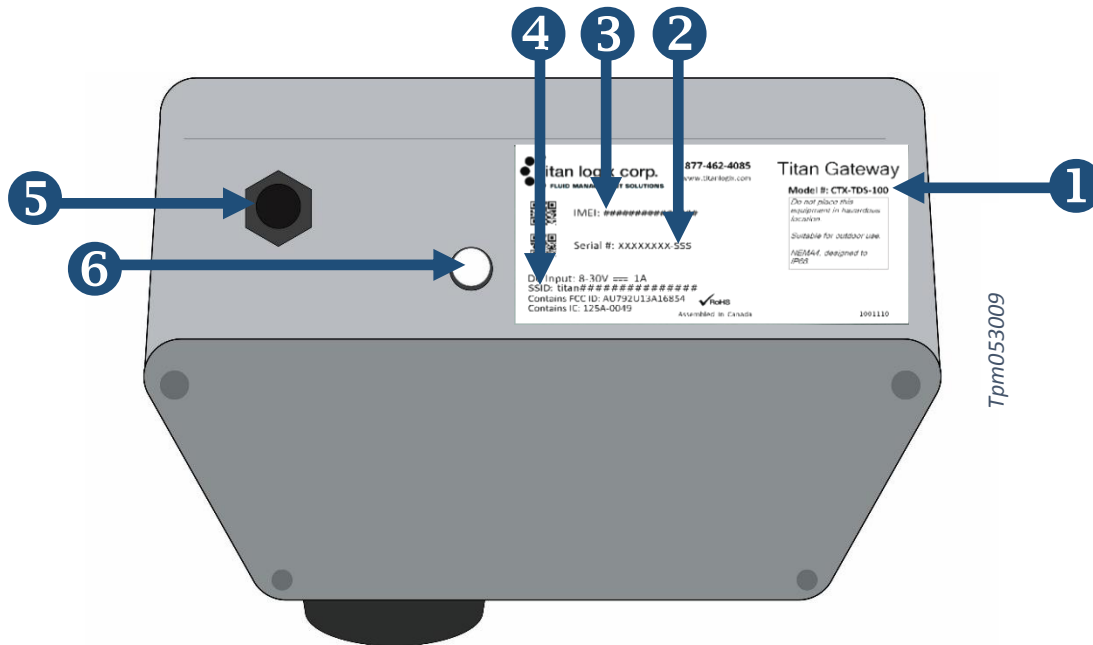5. Interconnect Cable Connector
6. Status Light

Figure 10 – Gateway Module (Bottom View)

(viewed from the top of the Gateway module)
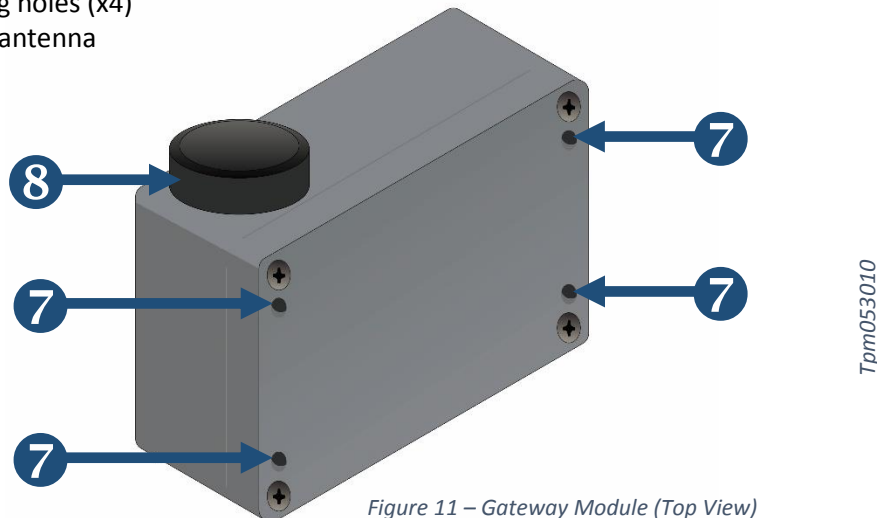
7. Mounting holes (x4)
8. External antenna

Figure 11 – Gateway Module (Top View)

Specifications

1. Gateway Module

Physical Operating Temperature:	-40C to +65C
Water and Dust Resistance:	NEMA4 when Interconnect Cable is Connected
Corrosion Resistance:	Fiberglass Reinforced Plastic (FRP) Enclosure
Mounting Bolt Torque Specification:	8-9.5 in.lb
Mounting Bolt Insertions:	4 times max.
Electrical Power:	8 – 30VDC, 1A max.
Approvals Electrical Compliance:	FCC and IC Class B Digital Device
Communication Serial:	RS232
Cellular Radio:	Supports HSPA+ and GPRS/EDGE
Wi-Fi:	802.11b/g/n 2.4GHz
Ethernet:	10/100 Base-T

2. Interconnect Cable

Water and Dust Resistance:	IP66 when connected to Gateway Module
Physical Dimensions:	36' +/- 12" (11m +/- 0.3m) length, 0.235" (6mm) O.D.
Material:	UV Resistant, Black PVC, 4 X 20AWG stranded

3. Gateway Configuration Utility

   Desktop or Laptop PC with Windows 7 or 10 Installed
   Display resolution 1024 X 768 min.
   Wi-Fi 802.11b/g/n, 2.4GHz
   Optional Internal 10/100Base-T Ethernet Adapter

   *External Ethernet adapter is not supported for Windows 10

Replacement Parts

Description	Titan Part Number
Gateway Mounting Bracket	1025-1042
Gateway Module, Model CTX-TDS-100	Gateway
Interconnect Cable	1003-0024
Mounting Bolts	1017-2112

INSTALLING THE GATEWAY MODULE

Prior to installation of the Gateway, verify that the TD80 system is operating normally and that the Finch II firmware has been updated (version 1.07.00 or greater). Refer to the TD80 product manual, TPM 001 and Finch II product manual, TPM 010.

For your convenience, we have provided a checklist so that you can keep track of where you are in the installation process.

Pre-installation Checklist

Checked	Steps
	1. Equipment Verified
	• Required tools and equipment
	• Optional tools and equipment
	• Parts and material provided by Titan
	• Parts and material not provided by Titan
	2. Facility Requirements Verified
	3. TD80 System Operation Confirmed
	• Retrofit Installation
	• New Installation

Mechanical Installation Checklist

Checked	Steps
	1. **Mounting Location Chosen**
	2. **Mounting Bracket and Module Installed**
	3. **Junction Box Installed**
	4. **Air Pressure Switch Installed (Trailer)**
	5. **Visual Inspection Performed**

Electrical Installation Checklist

Checked	Steps
	1. **Power Supply Verified**
	2. **Gateway to Junction Box Connected**
	3. **Finch Display to the Junction Box Connected**
	4. **Air Pressure Switch to Junction Box Connected (Trailer)**
	5. **Electrical Power to Junction Box Connected**
	6. **Visual Inspection Performed**

Confirmation Checklist

Checked	Steps
	1. **Operation of the Gateway Confirmed**

PRE-INSTALLATION

1. Verify Equipment

Required Tools
- Common automotive mechanical and electrical tools
- Power drill, drill bits
- Laptop PC
- Gateway Configuration software

Titan Supplied Parts
- Gateway Module
- Gateway Mounting Bracket
- Module Mounting Bolts
- Gateway Interconnect Cable
- Installation & Operation Manual TPM 053
- Configuration Utility Software and Manual TPM 054
- Quick Reference Sheet TPM 055

Vendor Supplied Parts
- Junction box kit - Truck - Lite^{tm} p/n 50400 or equivalent
- Compression fittings and filler plugs - Truck-Lite^{tm} or equivalent
  - Recommended fitting for Gateway cable diameter, 0.235" (6mm) O.D.
- Insulated crimp or solder ring terminals
  - Blue, 16 - 14 AWG, 8-10 Stud Size
  - Red, 22 - 18 AWG, 8-10 Stud Size
- Multi-conductor trailer cable
  - 2 conductors, 16 - 14 AWG
  - 4 or 5 conductors, 16 - 14 AWG
    - 4 conductors for Gateway installation only
    - 5 conductors for Gateway and LoadMaxx^{tm} installation

- Air pressure switch in a weatherproof enclosure for trailer installations

2. Verify Facility Requirements

Make sure that the installation area is in a weather protected area with adequate lighting, heating and ventilation. Have battery/electrical power and compressed air (optional) available for tools and trailer installation.

3. Confirm TD80 System Operation

Retrofit Installation
a. Confirm TD80 system operation according to Finch II product manual TPM 010, section 2.7 prior to installing the Gateway.
b. Update Finch II firmware if required. Confirm Finch II firmware version for Gateway operation (minimum version 1.07.00 or higher).

New Installation
a. After installation of the TD80 system and Gateway, confirm TD80 operation according to Finch II product manual TPM 010, section 2.7.

b. Update Finch II firmware if required.

MECHANICAL INSTALLATION

	WARNING
⚠️	Ensure the tank is completely drained of liquid and vapour free. No drilling or welding is to be performed on the tank and frame without first consulting with the tank manufacturer.

	CAUTION
⚠️	• **Ensure that the vehicle power is turned off before performing any other work.** • **Install the Gateway module in a non-hazardous location and use rated safety equipment such as fall restraint, in accordance with facility regulations and policies.** • **Ensure fuses and components are appropriate for the area classification.** • **Follow all federal, state/provincial and local safety standards and industry recommended practices for the vehicle. For example, the Federal Motor Vehicle Safety Standards (FMVSS) and the American Trucking Association (ATA) Technology and Maintenance Council (TMC) Recommended Practices (RP).**

1. Choose the Mounting Location (Module and Junction Box)

   • Choose a non-hazardous location
   • Maximum view of sky for best radio reception (module only)
   • Minimize electrical cable length where possible
   • Locate for ease of installation and repair
   • Protected from damage by road debris, trees, stepping or climbing, etc.

Refer to the Mounting Template Drilling Guide in the Reference Drawings section of this manual.

2. Install the Mounting Bracket and Module

    a) Install the mounting bracket using the mounting template drilling guide.
    b) Once the mounting bracket is bolted to the trailer, slide the module into the opening with the antenna facing upwards and to the left when the unit is facing you.
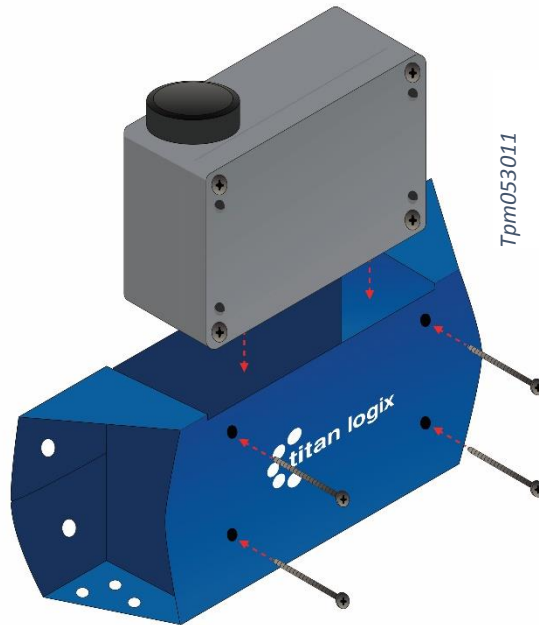

Figure 12 – Inserting the Gateway

    c) Secure the module to the bracket with the bolts provided.

!	**NOTE**
	Mounting bolts may only be inserted a maximum of four (4) times. Thread lock will wear and cause loosening of the Gateway Module. Call Titan for replacement bolts.

3. Install the Junction Box

4. Install Air Pressure Switch for Trailer Installations

5. Perform a Visual Inspection

    - ensure the area is free of debris
    - ensure electrical connections are secure
    - ensure all components are securely fastened
    - ensure there is a clear view of sky

ELECTRICAL INSTALLATION

When installing the Gateway and other electrical components, the following guidelines must be followed:

- Vehicle manufacturers usually have specific locations for electrical power access. These locations are fuse protected to limit short-circuit current. Refer to the vehicle documentation or contact the manufacturer for the recommended locations prior to the electrical installation.
- For trailers, connect the Gateway system power and ground to the nose box electrical connector. This will be a fused electrical power source from the truck. For trucks, connect system power to a switched and fused accessory power connection from the battery. A switched electrical power source is required to reduce battery drain while not in operation.
- When making connections to the vehicle electrical ground, ensure that the wiring is terminated at a battery ground terminal. Some metal components are electrically insulated from the battery ground or bolted with painted surfaces causing a poor connection.
- Wire splices and interconnections should be made inside a weather proof enclosure or junction box to prevent premature failure due to corrosion.
- Secure all wires and cabling with clips or cable ties.
- Tighten all compression fittings.

Refer to the Tank Truck/Trailer Wiring Schematics in the Reference Drawings section of this manual.

1. Verify the Power Supply

   - **Tank truck -** Switched accessory power
   - **Tractor-trailer -** Trailer ABS power or dedicated switched accessory power

The Gateway module must be supplied power while driving, to periodically report position and activity. The Gateway is supplied by continuous power from a source that is energized when the key switch is turned on.

On trucks, this is called 'Accessory Power'. On trailers, it is typically supplied by the anti-lock braking system (ABS) power from the J560 socket, pin-7.

2. Connect the Gateway to the Junction Box

   a) Install the interconnect cable at the junction box and connect the free end into the 4-pin connector at the bottom of the Gateway module, ensuring a fully seated connection
   b) Ensure cables are secured

Refer to the electrical options above for truck or trailer installation.

3. Connect the Finch Display to the Junction Box

4. Connect the Air Pressure Switch to the Junction Box (Trailer Installations)

5. Connect Electrical Power to Junction Box

6. Perform a Visual Inspection

CONFIRMING GATEWAY MODULE OPERATION

Once the Gateway module has been mounted and connected to a power supply (i.e. vehicle or battery power) and Finch display, verify proper operation by the following steps:

1. Turn on Gateway module by turning on the vehicle electrical accessory power or connecting to a fully charged battery power source.
2. Confirm the Gateway module status light is showing a solid light, then flashing at ½ second intervals after initialization.

!	**NOTE**
	Once powered up, the boot cycle for the module can take up to 2 minutes.

If the Gateway module is not operating as per the above condition, refer to the Troubleshooting section of this manual or contact your Titan representative.

GATEWAY OPERATION

The Gateway System does not have any operational controls. Operation is automatic when power is applied. Indication of operation is by observation of the status light on the module.

GATEWAY UTILITY

OVERVIEW

The Gateway Utility is a software tool to monitor the health of the Gateway, update internal software and modify the factory set configuration. Wi-Fi is used to communicate with the Gateway. This eliminates the need to directly connect to the vehicle, allowing maintenance to be performed remotely within Wi-Fi range of the Gateway and PC.

It is used after installation to verify normal operation of the Gateway. Service technicians may use the utility to verify normal operation of the Gateway and to diagnose failures. Internal settings are changed and software is updated in the field, eliminating the need to return the Gateway to Titan for most changes. The utility is compatible with desktop and laptop PCs with Windows 7 or 10 installed.

See the Configuration Utility Manual TPM 054 for detailed configuration and troubleshooting steps.

!	**NOTE** **The Gateway Utility has the ability to save and retrieve configuration profiles in the event of a software update or a module replacement.**

LOADING UTILITY SOFTWARE

Installing the utility software is a one-time operation.

Go to www.support.titanlogix.com and click on Gateway>Software>Download. The auto-start will guide the user through the initial installation.

Each Gateway system ships with the WI-FI password and SSID pre-installed at the factory. The SSID is located on the identification label on the bottom of the Gateway module:
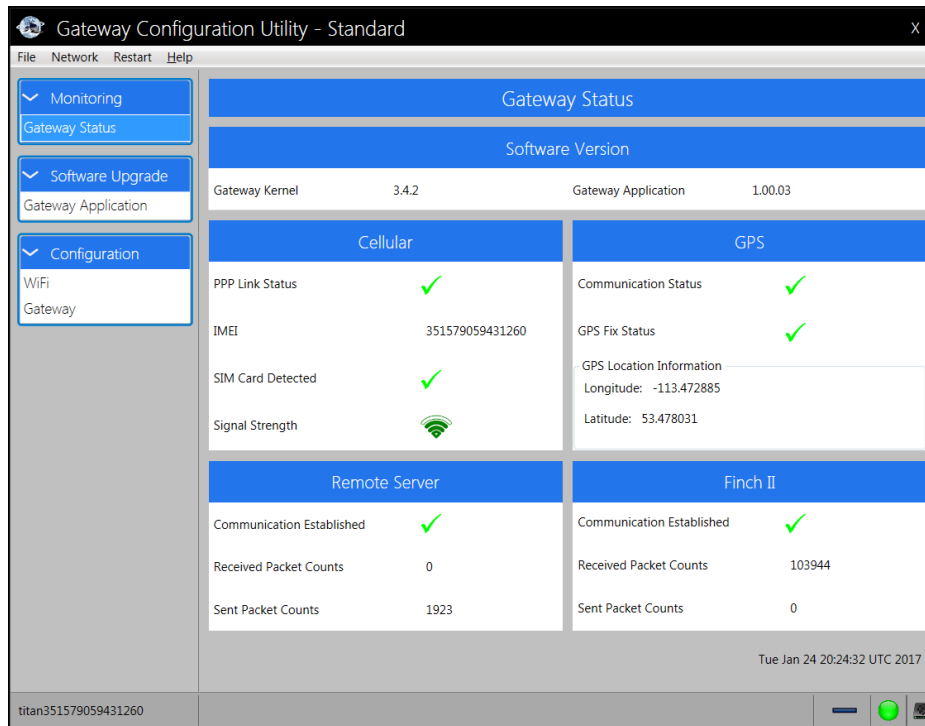

Figure 13 – Gateway Identification Label

GATEWAY UTILITY DESCRIPTION

Gateway Status Screen

The Status screen is the dashboard the user will see once the Utility is launched. This screen displays the general condition and connection status of the Gateway module.

Connecting to the Network

Once the Utility has launched, click on Network>Connect ❶ , then choose the correct network from the dropdown ❷ . If the correct network does not appear in the list, click on the refresh button ❸ . Enter your supplied password ❹ and click Connect ❺ .
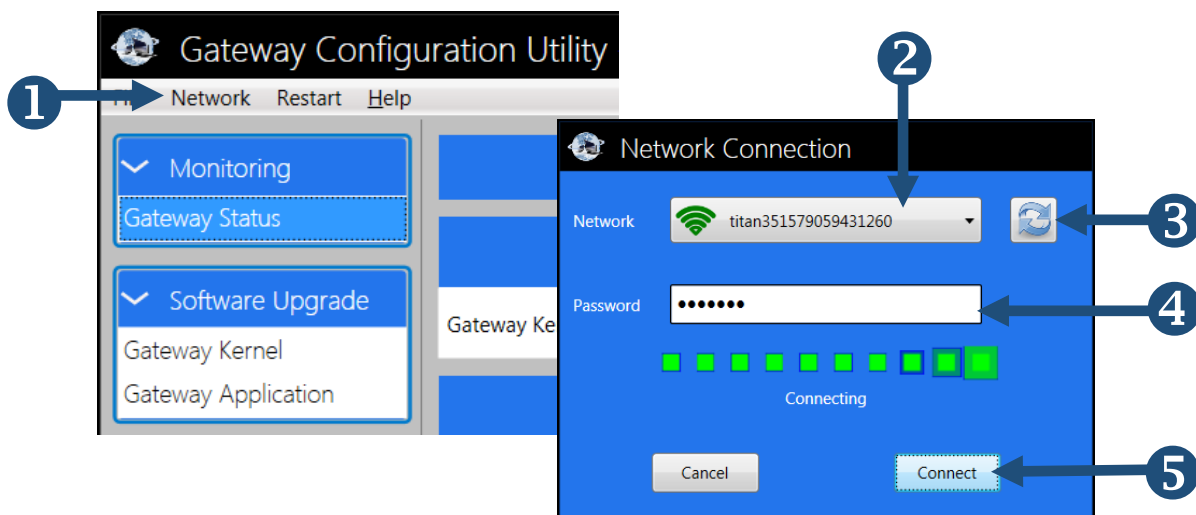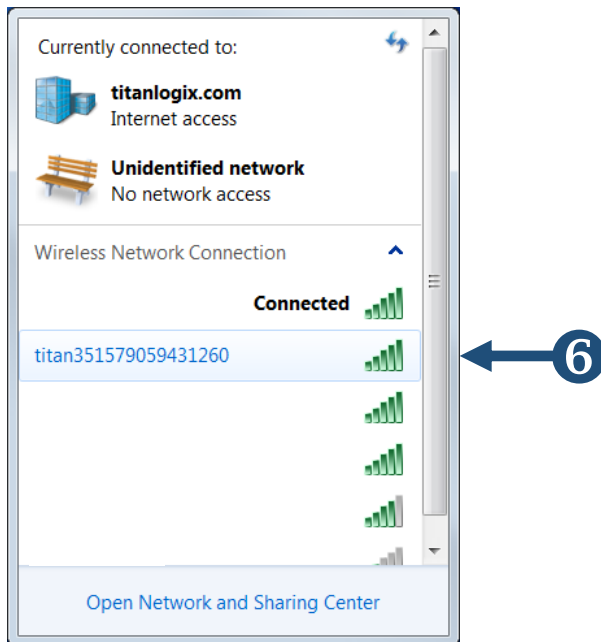
The user can confirm the connection with their PC Wireless Network Manager ⑥ (typically found at the bottom right-hand corner of the screen).

For details on connecting to the network and for connection troubleshooting steps, refer to the Configuration Utility manual TPM 054.

Gateway Configuration Screen

This screen displays the Gateway settings. It displays information on:

- Remote server
- Network servers
- DNS servers
- Finch II communication
- GPS
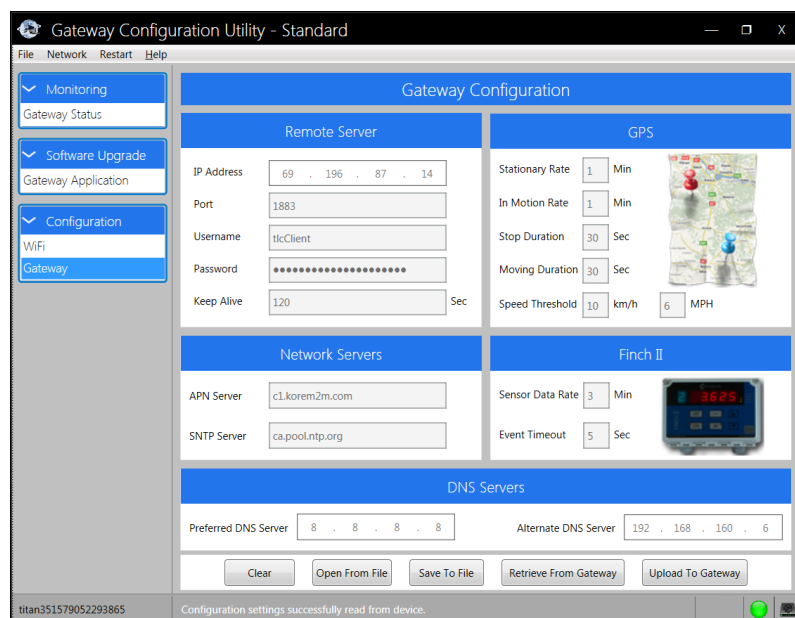
!	**NOTE** **Prior to any upgrade and/or update, it is recommended that the user save their settings.**

Save Settings

1. Connect to the Gateway through Wi-Fi
2. Click Configuration Gateway>Retreive From Gateway>Save To File
3. Select a folder and filename to save a record of the current Gateway configuration
4. Keep the file in a secure place and use for reference when needed
5. Optionally record the settings in a text file or capture a screenshot with the configuration settings; save in a secure place and use for reference when needed

Retrieve Settings from the Gateway

1. Connect to the Gateway through Wi-Fi
2. Click Configuration Gateway>Retreive From Gateway
3. Record the settings in a text file or capture a screenshot with the configuration settings; save in a secure place and use for reference when needed
4. Optionally click Save To File, select a folder and filename to save the configuration

Use these settings to compare with the configuration on file that was previously saved during installation or maintenance.

Retrieve Settings from a File (connection to the Gateway is not required)

1. Click Configuration Gateway>Open From File
2. Browse to the folder that contains the previously saved configuration settings
3. Select the correct file and click Open
4. Record the settings in a text file or capture a screenshot with the configuration settings; save in a secure place and use for reference when needed

Changing the Wi-Fi Password

The Utility is configured at the factory with a factory set Wi-Fi password. Titan recommends the owner change the password to one that is unique to them.

The factory set SSID is: **titanxxxxxxxxxxxxxxxx**

**(see the SSID label on the module for the correct number)**

The factory set WI-FI password is: **tlcgateway**

Changes to the password can be made using the configuration utility. See the Configuration Utility Manual, TPM 054 for further details.

In the event the Wi-Fi password is lost or forgotten, or if the password needs to be reset to the factory setting, contact Titan.

!	**NOTE**
	Keep the passwords in a secure place and use for reference when needed.

Establish a Wi-Fi connection to the Gateway, then click on the Wi-Fi option ❶ under the Configuration dropdown.
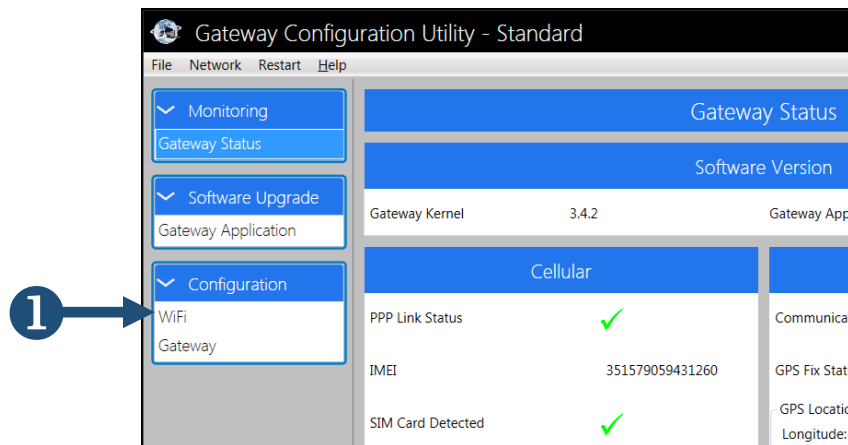
Enter your factory set password ❸ then enter your new, unique password ❹ .

Enter the new password again ❺ . Click to change password ❻ .

1. Once the password has been reset, restart the Gateway device or cycle the power
2. Click on RESTART>GATEWAY DEVICE
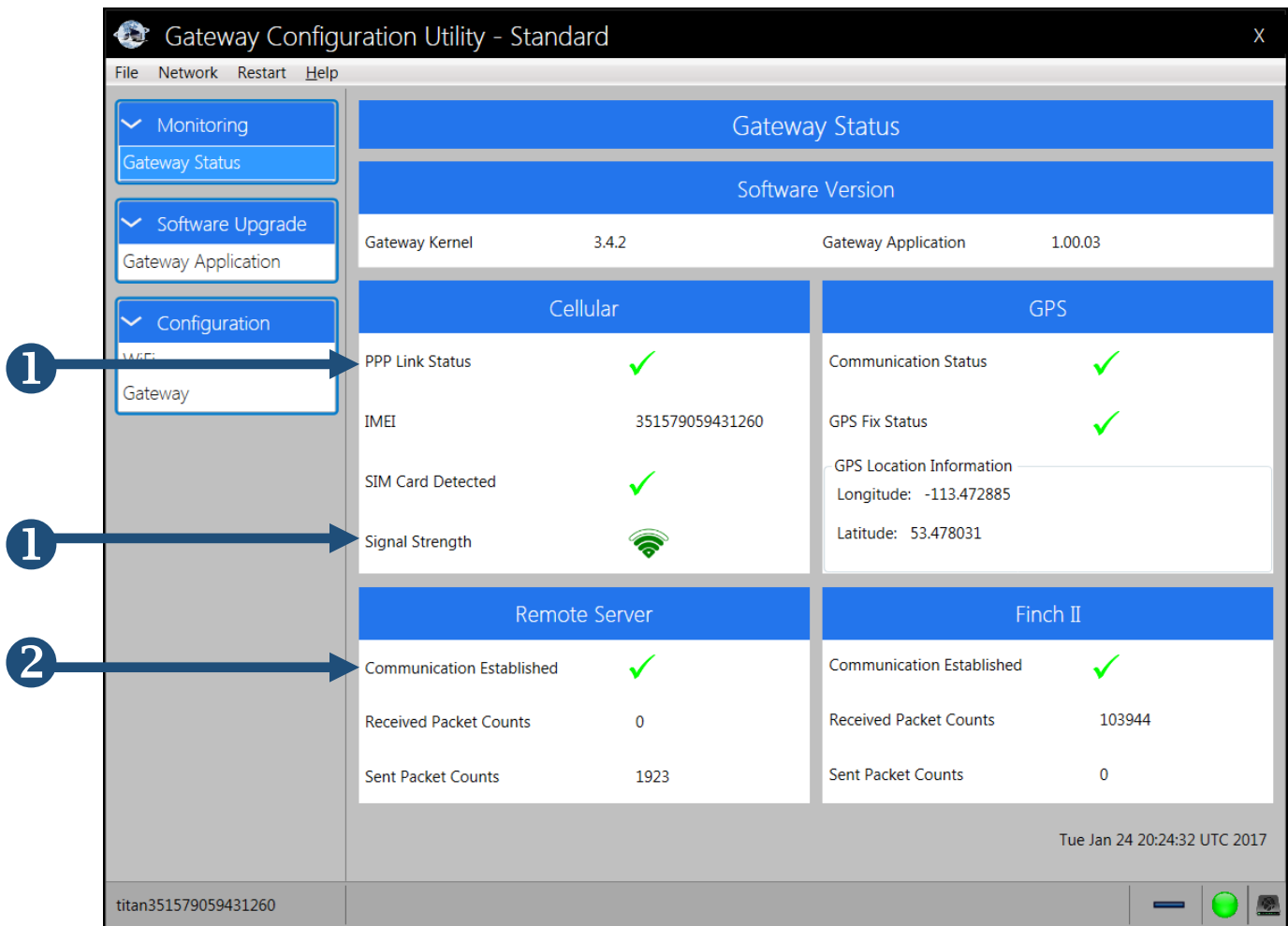3. Choose Yes/No or cycle the power

After restarting the Gateway device, the user must perform the network connection steps listed previously.
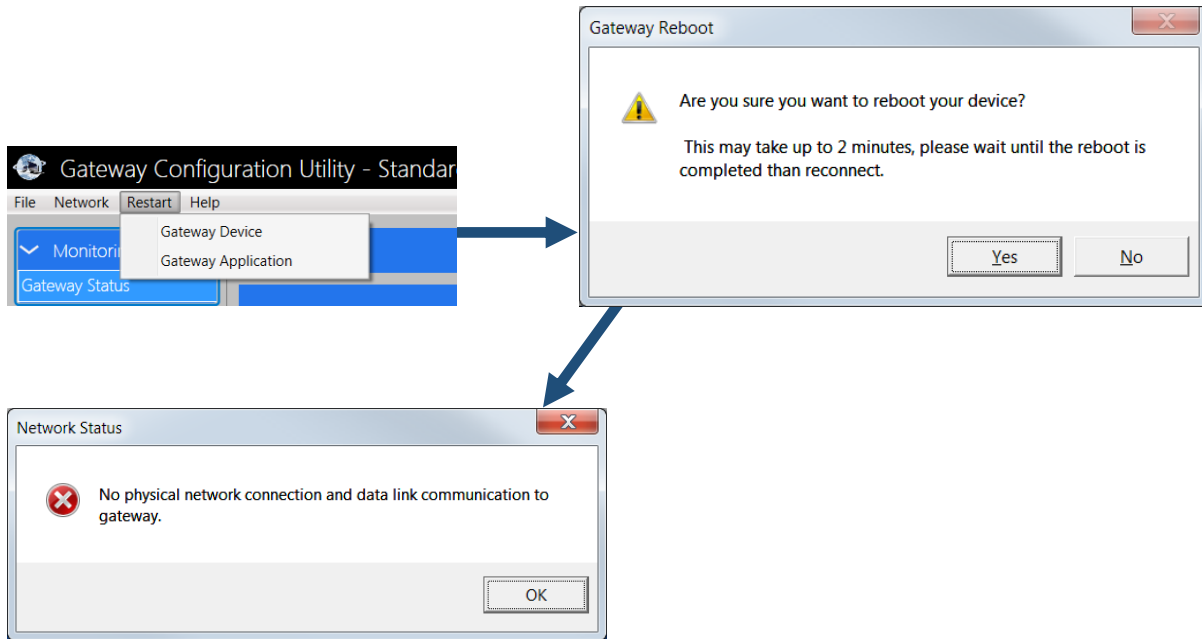
CONFIGURATION AND COMMUNICATION TEST PROCEDURE

Perform the following steps after installation or repair to check Gateway communication or for custom configuration. This procedure is intended to be used by installers and service technicians. Proceed to the troubleshooting section if a check fails.

Step	Detail	✔
1. Power up the Gateway	a) Turn on the Gateway module by turning on the vehicle electrical accessory power or connecting to a fully charged battery power source b) Wait until the status indicator starts flashing (this could take up to 2 minutes) c) Observe that the status indicator is blinking ½ second ON and ½ second OFF	
2. Launch the Gateway Configuration Utility - Standard	a) Establish a Wi-Fi connection with the Gateway b) Save the configuration settings using the Gateway Configuration Management procedure in this manual c) Click the "Gateway Status" selection	
3. Optional – Customized Configuration	a) Go to the Gateway Configurations page b) Click "Open From File" c) Browse to the configuration file folder (new file provided by Titan), click on the filename, then click "Open" (the filename ends in .gwu and is supplied by Titan) d) Confirm that the new settings are correct e) Save new settings to the Gateway by clicking "Upload to Gateway" button f) Restart the Gateway device g) Reconnect to the Gateway via Wi-Fi h) Go to the Gateway Status page	
4. Check the Cellular Status	a) PPP Link Status, checked b) Signal Strength, good ❶	
5. Check the Remote Server Status	a) Communication Established ❷	

UPDATES

Whenever there is an internet connection, the Utility will search for, and auto-update the program. The program will prompt if you want to do the update. Once the program is launched, you will see the following status as the utility updates:
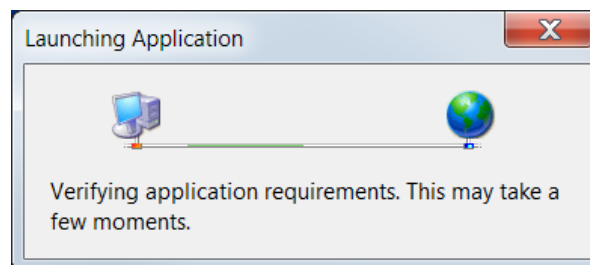
SECURITY

Titan recommends the following steps to protect the security of your system:

- Change the Wi-Fi password from the factory setting
- Keep all passwords documented and secure
- Password must be at least 8 characters. Use a combination of letters, numbers and symbols. Do not use spaces or these special characters: < > & '

SECURITY

COMMISSIONING

TO BE DETERMINED

TROUBLESHOOTING & MAINTENANCE

	NOTE
!	**Begin troubleshooting with the Gateway Health Check. This will indicate normal system operation or a failure. Resolve any issues using the troubleshooting checklists below. If the problem(s) persist, contact your Titan representative for further assistance.**

GATEWAY HEALTH CHECK

The Gateway Health Check is a quick test to confirm that the Gateway is operating normally or to verify a failure. It uses visual observation of the status light and the Configuration Utility to determine the health of the system. Failure of any checklist step below indicates a problem to be resolved.

This check is easily performed remotely through a Wi-Fi connection. Note that the vehicle must provide adequate power for a successful health check. Error free steps 2 through 6 imply that the Status light is indicating normally.

Step	Detail	✔
1. Observe the Gateway Status light	Confirm: Blinking ½ second ON, ½ second OFF	
2. Launch the Gateway Configuration Utility	Establish a Wi-Fi connection with the Gateway Click the "Gateway Status" selection	
3. Finch II communication	Confirm: Communication Established, checked	
4. Cellular connection	Confirm the following: - PPP Link Status, checked - Signal Strength, good	
5. Remote server connection	Confirm: Communication Established, checked	
6. GPS data	Confirm the following: - Communication Status, checked - GPS Fix Status, checked	

TROUBLESHOOTING

The Gateway system operation depends on correct operation of the vehicle's power supply, connection to the TD80 Level Gauging System, and communication with the remote server. Failure of any one of these components disrupts the Gateway operation.

Methodical testing and verification of the TD80 system and Gateway components will lead to successful troubleshooting and repair. For TD80 system issues, refer to the Finch II product manual, TPM 010, for troubleshooting and repair details. The following test and troubleshooting guidance is for Gateway issue resolution.

Required tools and equipment

- Laptop computer with Standard Gateway Configuration Utility installed
- Digital Multimeter (DMM)
- Electrical wiring diagrams
- TD80, Finch II troubleshooting guides, TPM 010

Optional tools and equipment (as required)

- Finch II programming kit and software
- Up-to-date Finch II firmware file
- Alligator clip jumpers
- Test light
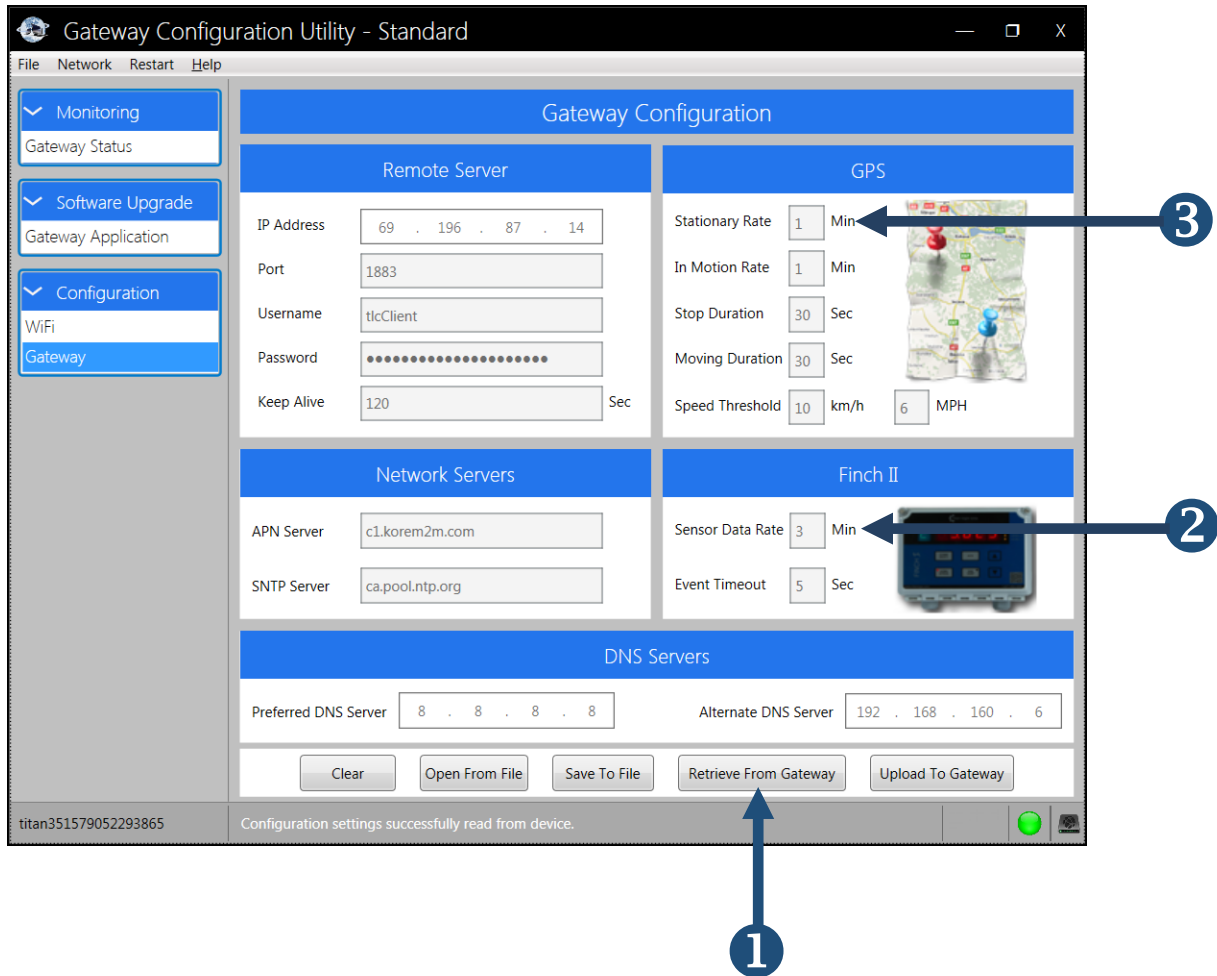
Gateway Troubleshooting

The following diagnostic checklist provides guidance for troubleshooting basic operation and electrical system problems.

Indication	Condition	Resolution	✓
Status light is on – solid	Internal Gateway failure	Contact Titan	
Status light is off	Power is not turned ON, electrical failure or internal Gateway failure	1. Confirm adequate power supply and adequate operating voltage at the power and ground terminals to the following components: • Finch II display • Gateway 2. Verify all cables are connected and wires are secure on the connections below: • Gateway interconnect cable to the junction box • Power supply wiring • Internal junction box wiring • Gateway to Finch II wiring 3. Contact Titan	
Status light is ½ second on, ½ second off	Gateway is operating	Continue with the diagnostics below	

Gateway Communications Diagnostics

Perform each of the diagnostic steps below before performing any communications troubleshooting to determine the status of the Gateway system. Issue resolution may require contacting your Titan representative.
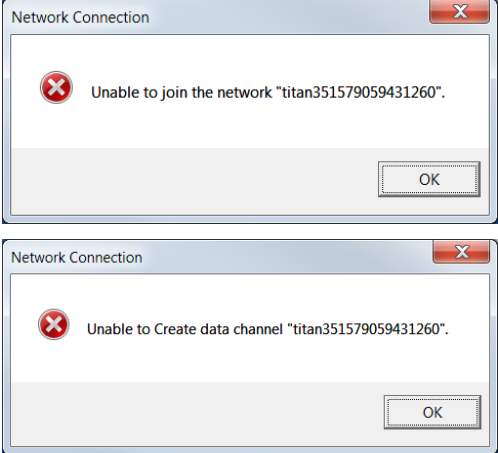
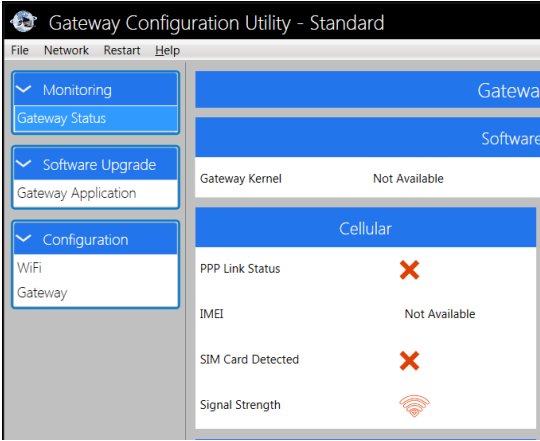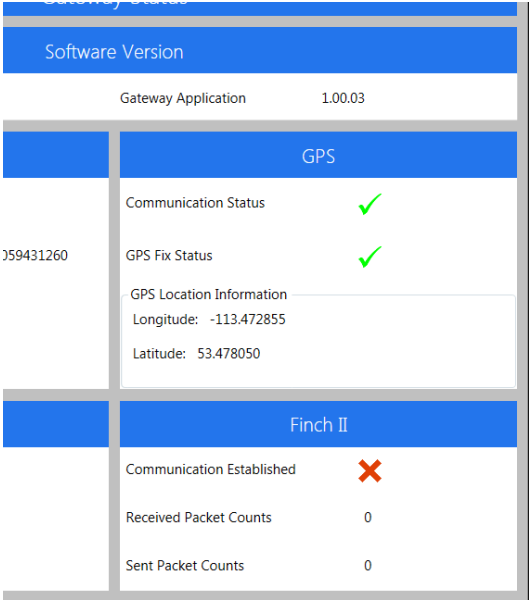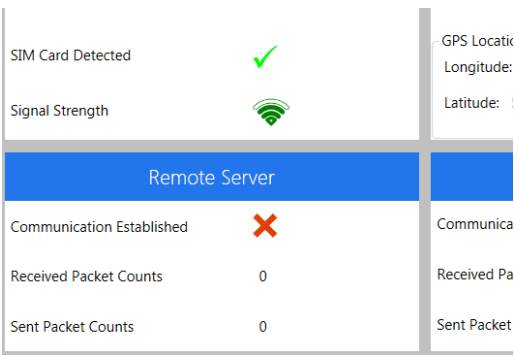| Diagnostic Step	Detail	✔
1. Observe antenna location	Unobstructed view of sky	
2. Launch the Gateway Configuration Utility	Establish a Wi-Fi connection with the Gateway	
3. Verify Gateway settings. Troubleshooting may continue without this step, but some issues may not be resolved.	Gateway Configuration screen: Click the "Retrieve From Gateway" button ❶ and confirm all settings	
4. Finch II communication	Gateway Status screen: Confirm the following: a) Communication Established, checked b) Received Packet Counts, incrementing at the expected rate; see the Sensor Data Rate setting ❷	
5. Cellular connection	Gateway Status screen: Confirm the following: a) PPP Link Status, checked b) IMEI c) SIM Card Detected, checked d) Signal Strength, good	
6. Remote server connection	Gateway Status screen: Confirm the following: a) Communication Established, checked b) Sent Packet Counts, incrementing at the expected rate; see the Stationary Rate setting ❸	
7. GPS data	Gateway Status screen: Confirm the following: a) Communication Status, checked b) GPS Fix Status, checked c) GPS Longitude and Latitude, current location	

Gateway Communication Troubleshooting

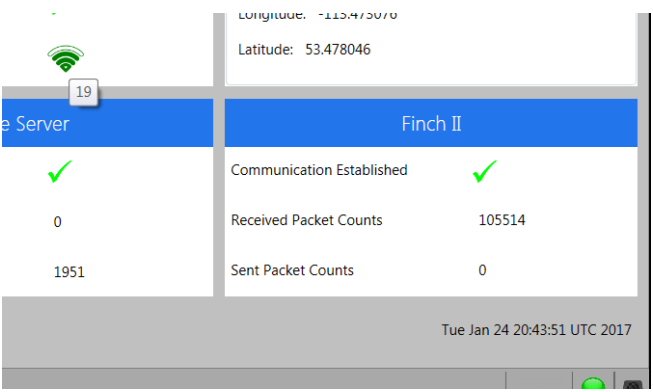| Condition	Resolution
Gateway is not connected through Wi-Fi to the Configuration Utility Network Connection — Unable to join the network "titan351579059431260". OK Network Connection — Unable to Create data channel "titan351579059431260". OK	Make sure the correct Wi-Fi network has been selected and the corresponding password has been entered correctly Retry the Wi-Fi network connection

Condition	Resolution
No SSID Available for the Gateway	1. Ensure there is power to the system 2. Ensure the Gateway is within transmission range 3. Ensure the SSID is correct 4. Ensure the Wi-Fi adapter is turned on
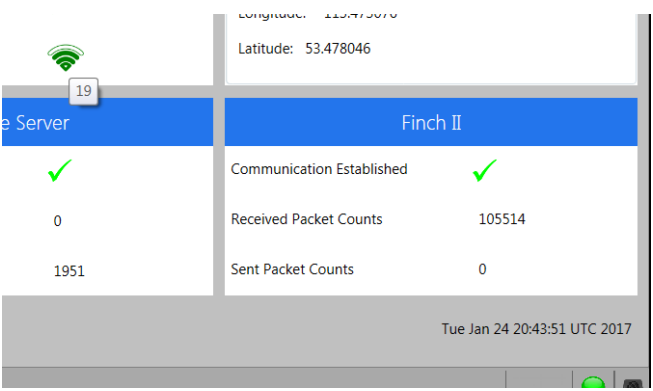
Condition	Resolution
Sim card is not detected 	Contact Titan

Condition	Resolution
PPP link is not detected 	1. Check the cellular signal strength 2. Check the APN Server settings 3. Cycle the power to the Gateway 4. Observe the PPP link after 2 minutes

Condition	Resolution
Finch II Communication not established 	1. Ensure the cable connections between the junction box, Gateway and the Finch II display unit are secure 2. Confirm that the Finch II and TD80 are operating normally as per TPM 010 3. Confirm the Finch II firmware version supports Gateway operation, firmware version 1.07.00 or greater

Condition	Resolution
Remote network server is not communicating 	1. Check the Remote Server and DNS settings 2. Check PPP link status is checked 3. Cycle the power to the Gateway 4. Observe the PPP link and remoter server communication after 2 minutes

Condition	Resolution
Gateway date and time are incorrect	Check the Network Servers, SNTP Server setting

Condition	Resolution
Gateway is not sending data at the expected rate	Check the GPS and Sensor Rate settings in the Gateway Configuration

ASSET MANAGEMENT DASHBOARD VERIFICATION (3RD PARTY PROVIDER)

1. Login to the customer account to access the dashboard by an internet connected device (PC or smartphone). The website address username and password are provided by the customer.
2. Select the vehicle or asset being tested.
3. Verify the following details:

Verification Step	Detail	✔
GPS Location	Confirm location	
Tank volume(s) and alarm status	Confirm product volume(s) and alarm status	

REPAIR

TD80 and Finch II

Repair or replace components according to the TD80 product manual, TPM 001 and Finch II product manual, TPM 010.

Gateway Module

The Gateway module is not field repairable. There are no user serviceable components inside. Return the unit to Titan for repair or replacement.

System Wiring

It is not recommended to repair damaged TD80 system or Gateway cabling. Replace the cable to maintain the weather-proof quality of the interconnect wiring. Temporary or emergency field repair of damaged cables or cut wiring is acceptable. Replace the cable at the earliest opportunity.

MAINTENANCE

Visually inspect the Gateway module periodically, ensuring that:

- the mounting bracket is secure
- the connecting cable from the Gateway module to the junction box is secure
- cables are not damaged or frayed
- the Gateway status light is displaying correctly
- the module, cables, and peripheral equipment are free of any obstructions or debris

REFERENCE DRAWINGS

TANK TRUCK WIRING SCHEMATIC
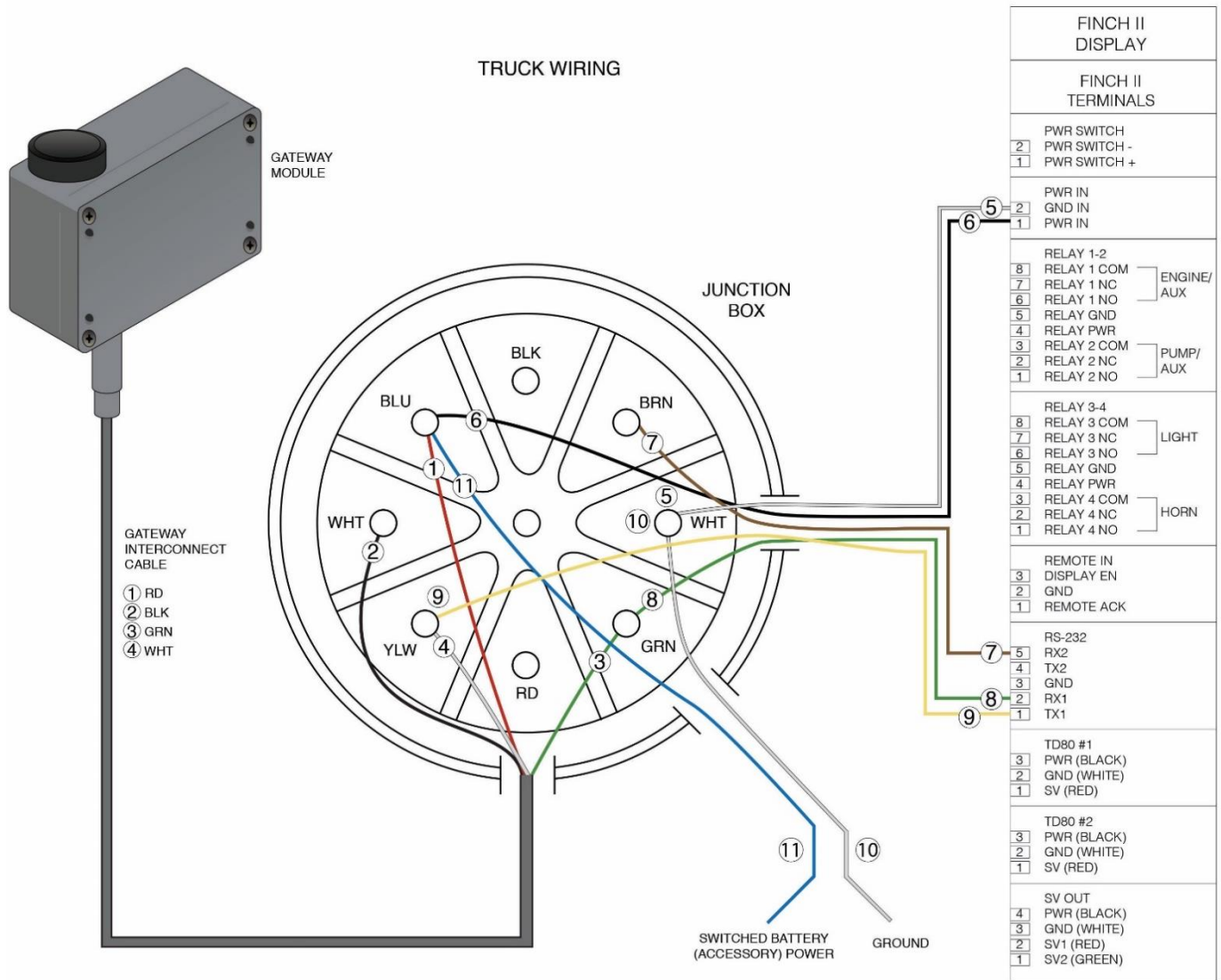
Figure 14 – Truck Wiring Schematic
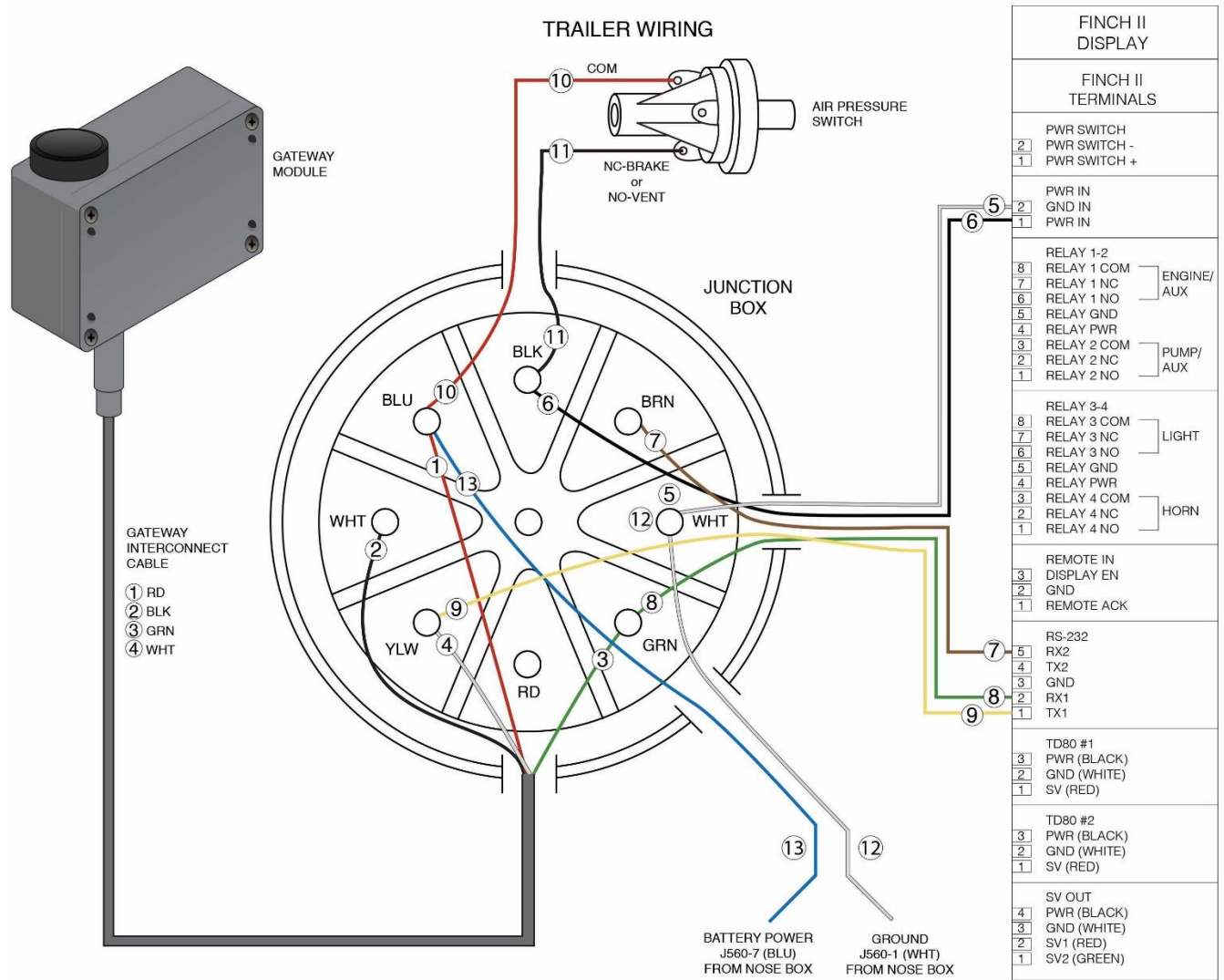
Gateway Interconnect Cable Connection Details

① RD   – Power
② BLK – Ground
③ GRN – RS232 from the Gateway
④ WHT – RS232 to the Gateway

Truck Installation Wiring Connection List

1. Connect Gateway to Junction Box, wires 1, 2, 3 and 4
2. Connect Finch to Junction Box, wires 5, 6, 7, 8 and 9
3. Connect Power and Ground to Junction Box, wires 10 and 11

Wiring Connection	Gateway Interconnect Cable Wires	Junction Box Terminals	Air Pressure Switch Terminals	Vehicle Power from Switched Accessory Power	Finch II Terminals
1	RD	BLU			
2	BLK	WHT			
3	WHT	YLW			
4	GRN	GRN			
5		WHT			GND IN
6		BLK			PWR IN
7 – Optional, reserved for LoadMaxx^{tm}		BRN			RX2
8		GRN			RX1
9		YLW			TX1
10		WHT		Chassis Ground	
11		BLU		Accessory Power	

TRAILER WIRING SCHEMATIC

Figure 15 – Trailer Wiring Schematic

Gateway Interconnect Cable Connection Details

① RD — Power
② BLK — Ground
③ GRN — RS232 from the Gateway
④ WHT — RS232 to the Gateway

Trailer Installation Wiring Connection List

1. Connect Gateway to Junction Box, wires 1, 2, 3 and 4
2. Connect Finch to Junction Box, wires 5, 6, 7, 8 and 9
3. Connect air pressure switch to Junction Box, wires 10 and 11
4. Connect Power and Ground to Junction Box, wires 12 and 13

Wiring Connection	Gateway Interconnect Cable Wires	Junction Box Terminals	Air Pressure Switch Terminals	Vehicle Power from J560 Nose Box Socket	Finch II Terminals
1	RD	BLU			
2	BLK	WHT			
3	WHT	YLW			
4	GRN	GRN			
5		WHT			GND IN
6		BLK			PWR IN
7 – Optional, reserved for LoadMaxx^{tm}		BRN			RX2
8		GRN			RX1
9		YLW			TX1
10		BLU	COM		
11		BLK	NC – Brake Or NO - Vent		
12		WHT		J560 -1 Ground	
13		BLU		J560 -7 Power	

MOUNTING TEMPLATE DRILLING GUIDE

!	**NOTE**
	Drawing 1001135v1.0 is not to scale and is provided solely for the purpose of showing the bolthole pattern required in the mounting of the Gateway bracket.

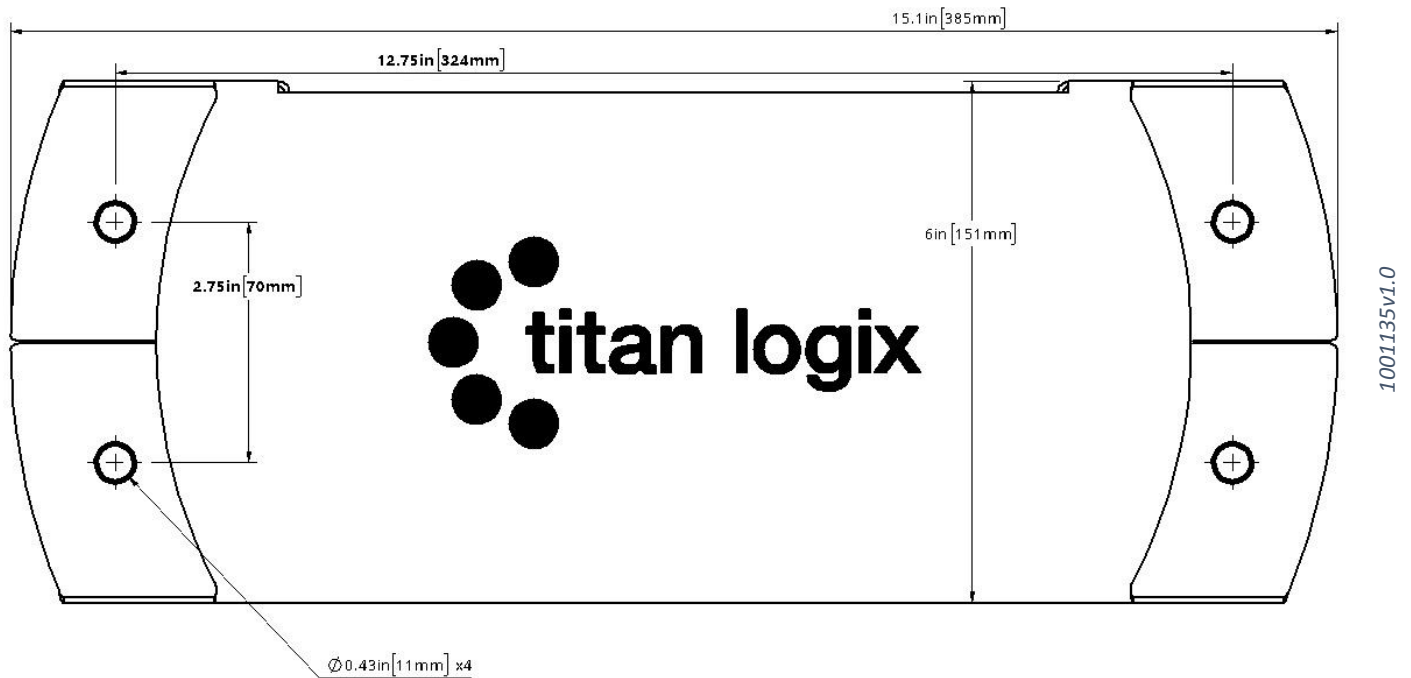*Figure 16 – Mounting Template*

Manufactured by: Manufactured in Canada

titan logix corp.
FLUID MANAGEMENT SOLUTIONS