Parker Gateway for Mobile IoT Solution

North/Central/South Americas

PVSG-IQAN-C2E1M2W1U1

Europe/Australia/New Zeland/International

PVSG-IQAN-C2E1M3W1U1

User Guide

⚠ Warning!

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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Contents

Publication History

The following table provides an overview of the changes made to this document over the course of its publication history.

Rev No	Release Date	Description of Change
1	5-18-2018	First release of this document
2	6-18-2018	Updated URL's, Added System Block Diagram, added carrier information, added metric units
3	8-15-2018	Updated 4G information: images, part numbers, connections, specifications and certifications
4	1-7-2019	Added GPS section and updated diagnostic troubleshooting section
5	3-7-2019	Added Torque spec's for antenna connections, updated certifications section
6	2-12-2020	Added new parts number for low data packages
7	2-13-2020	Delete part number 166085 in section 1.4 Add part number 166034 in section 1.4
8	6-10-2020	Added information of new tiering services and European gateway support
9	5-19-2021	Correct 2yr and 3yr part number and PVSG abbreviations
10	8-01-2021	Adding User Experience 2.0 screens and onboarding steps Edit the knowledge base link to Parker Community.

Safety

Do not perform the procedures in this manual unless you are experienced in the handling of electronic equipment.

Contact the manufacturer if there is anything you are not sure about or if you have any questions regarding the product and its handling or maintenance.

The term "manufacturer" refers to Parker Hannifin Corporation.

Safety symbols

The following symbols are used in this document to indicate potentially hazardous situations:

❌ *Danger! Risk of death or injury*.

⚠️ *Warning! Risk of damage to equipment or degradation of signal*

When you see these symbols, follow the instructions carefully and proceed with caution.

General safety regulations

Work on the hydraulics control electronics may only be carried out by trained personnel who are well-acquainted with the control system, the machine, and its safety regulations.

> ⚠ Follow the manufacturer's regulations when mounting, modifying, repairing, and maintaining equipment. The manufacturer assumes no responsibility for any accidents caused by incorrectly mounted or incorrectly maintained equipment. The manufacturer assumes no responsibility for the system being incorrectly applied, or the system being programmed in a manner that jeopardizes safety.

> ⚠ Do not use the product if electronic modules, cabling, or connectors are damaged or if the control system shows error functions.

> ⚠ Electronic control systems in an inappropriate installation and in combination with strong electromagnetic interference fields can, in extreme cases, cause an unintentional change of speed of the output function.

Welding after installation

Complete as much as possible of the welding work on the chassis before the installation of the system. If welding must be done afterwards, proceed as follows:

> ⚠️ Do not place the welding unit cables near the electrical wires of the control system.

1. Disconnect the electrical connections between the system and external equipment.

2. Disconnect the negative cable from the battery.

3. Disconnect the positive cable from the battery.

4. Connect the welder's ground wire as close as possible to the place of the welding.

Construction regulations

The vehicle must be equipped with an emergency stop which disconnects the supply voltage to the control system's electrical units. The emergency stop must be easily accessible to the operator. If possible, the machine must be built so that the supply voltage to the control system's electrical units is disconnected when the operator leaves the operator's station.

Safety during installation

> ⚠️ Incorrectly positioned or mounted cabling can be influenced by radio signals, which can interfere with the functions of the system.

Safety during start-up

> ❌ *Danger! Risk of death or injury.* Do not start the machine's engine before the control system is mounted and its electrical functions have been verified. Do not start the machine if anyone is near the machine.

Safety during maintenance and fault diagnosis

Before performing any work on the hydraulics control electronics, ensure that
The machine cannot start moving.

- Functions are positioned safely.
- The machine is turned off.
- The hydraulic system is relieved from any pressure.
- Supply voltage to the control electronics is disconnected.

1. About the PVSG-IQAN (Parker Vehicle System Gateway with IQAN Integration)

The PVSG-IQAN is a version of the Parker Vehicle System Gateway family, it enables an end to end IoT solution which utilizes Parker's Mobile IOT cloud and IQAN Tools services. The gateway can be used with any J1939 CAN based control system however, has a high level of integration with IQAN controllers for a user-friendly experience. This manual specifically covers the PVSG-IQAN-C2E1M2W1U1 (for North America, Central and South America) and PVSG-IQAN-C2E1M3W1U1 (for Europe, Australia and New Zealand and other international regions when applicable). The product offers Asset remote monitoring and remote diagnostics capabilities.

1.1. Remote Monitoring Capabilities

By pairing with Parker's Mobile IoT cloud, the end to end solution also has several remote monitoring capabilities.
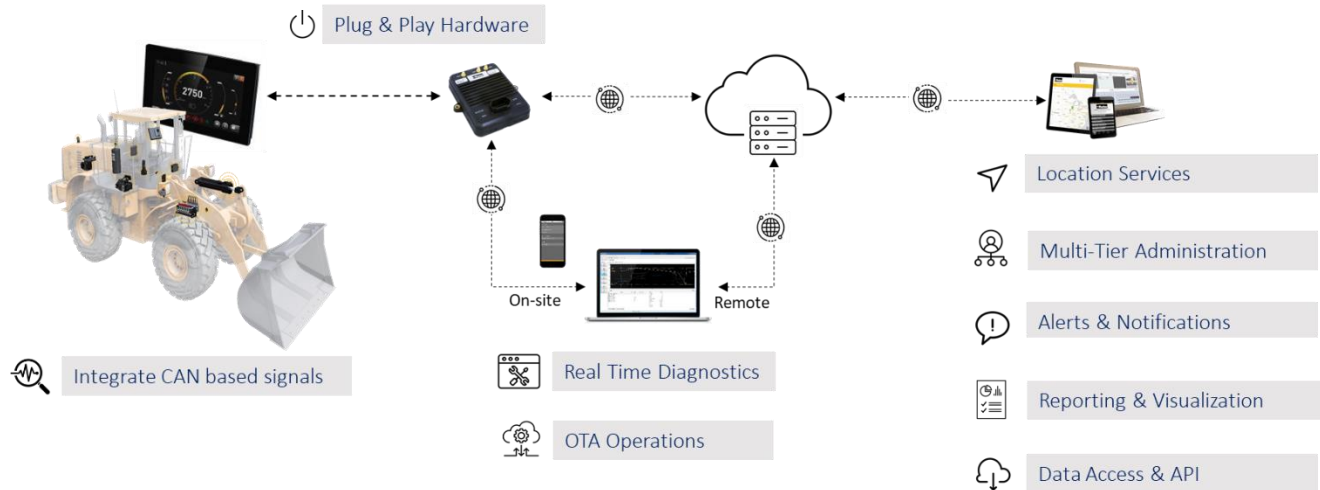
Figure 1: Parker Mobile IoT service

1.1.1. Integrate CAN based signals

- Select and manage CAN signals from controllers
- Flexibly synchronize and point controller signals to the cloud for easy data acquisition
- User defined signals (or form signal groups) and select frequency of transmission
- Define/export telematics signals from IQANdesign

1.1.2. Location Services

- Track and locate assets / fleets
- Bread crumbing
- Monitor productivity status
- Monitor conditions real time on web and mobile interfaces

1.1.3. Multi-Tier Administration

- Flexible branding styles that fits your business as well as your customer's needs
- Define multi-tier organizations
- Define user security levels access
- Move machines between hierarchical structures

1.1.4. Alerts & Notifications

- Define signal alerts / severities
- Set multi-thresholds signal alerts
- Subscribe email and text notifications to defined personnel
- Take action upon real time alerts to improve performance and productivity.

1.1.5. Reporting & Visualization

- Customizable signal grouping and dashboard
- Monitor fuel usage, engine hours, temperatures, pressures, time to service and more
- Compare machine and organization performance
- View and export historical data
- View data to support warranty claims

1.2. Remote Diagnostic Troubleshooting Capabilities

Using the remote IQAN Connect diagnostic tools allows a user to remotely connect to a vehicle enabling the following functionality over the air:

1.2.1. Real Time Diagnostics

- Manage and act upon DM1 faults and history from portal
- Integration with IQAN service and diagnostics tools
- Speed troubleshooting and repairs using remote and local diagnostics from PC or mobile apps
- Improved customer response and reduced downtime

1.2.2. OTA Operations

- Real time communication with IQAN controllers

- Keep on-board programs current via OTA updates
- Manage machine software versions
- Coordinate support with experts via remote access
- Deep integration with IQAN tools for real time access: IQANdesign for application program development; IQANrun for PC and IQANgo mobile application for machine diagnostics.

1.3. Hardware Overview

Figure 2: PVSG-IQAN-C2E1M2W1U1

1.3.1. Plug & Play Hardware

- Fully provisioned, multi-country capable SIM
- 4G LTE cellular, Wi-Fi,
- 2 CAN networks -250kbps (IQAN CAN Protocol, SAE J1939 Protocol, other possible)
- IP67 rating, mobile hardened
- Easily connect assets to the IoT cloud w/ store and forward capabilities
- LED blink codes for status
- Combi antenna

The main features of the PVSG-IQAN hardware are listed in the following table:

PVSG-IQAN-C2E1M2W1U1 (NA)	
Characteristic	**Description**
Status LEDs	4 x tri-color
Communication	CAN x 2
	4/3/2G Modem x 1
	Wi-Fi x 1
Inputs	1 x Power Control)
External antenna connections	2 x SMA (GSM, GPS)
	1 x RP-SMA (Wi-Fi)
RTC (Real Time Clock)	Powered with 10-year lithium battery
Connector	Deutsch DT16, 18 pin, key A

PVSG-IQAN-C2E1M3W1U1 (EU)	
Characteristic	**Description**
Status LEDs	4 x tri-color
Communication	CAN x 2
	4/2G Modem x 1
	Wi-Fi x 1
Inputs	1 x Power Control)
External antenna connections	2 x SMA (GSM, GPS)
	1 x RP-SMA (Wi-Fi)
RTC (Real Time Clock)	Powered with 10-year lithium battery
Connector	Deutsch DT16, 18 pin, key A

1.4. Ordering Part Numbers & Accessories

There are two versions of the PVSG-IQAN gateway:

- North America/Americas - PVSG-IQAN-C2E1M2W1U1
- Europe/International - PVSG-IQAN-C2E1M3W1U1

Both gateway options are bundled with three levels of service, each part number includes specific cellular service, web portal access and OTA capabilities for the duration defined in the description. Premium, Standard and Basic service levels are explained in the table below. It is recommended that the Parker antenna part numbers 167019 or 167021 are used for optimum performance.

1.4.1. Parker Mobile IOT Part Numbers

Parker IOT Service	Description	Basic	Standard			Premium		
				Service Options				
Service Plans and Connectivity Options	Service contract period	1YR	1YR	2YR	3YR	1YR	2YR	3YR
	Americas: 4G LTE B2, B4, B5, B12 3G UMTS B1, B2, B5, B8	166032	167792	167793	167791	166033	166034	166035
	Europe/International: 4G LTE B3, B7, B20	167998	167999	168000	168001	167990	167991	167992
Service Renewal	Service 1-year renewal	IOT166032_OTA1YR	IOT10680061YR			IOT10680021YR		
Data Plan	Megabytes (MB) per machine per month	25MB	25MB Approx. 15 signals every hour			200MB (Pooling > 100) Approx. 600+ signals every hour		
Overage	Data Overage charges	Applies	Applies			Applies		
IQAN Connections	Integration with IQAN tools for real-time remote diagnostics and software OTA updates	✓	✓			✓		
Wi-Fi (AP) IQAN Diagnostics	Connect mobile devices to gateway access point, perform IQAN real time diagnostic and software OTA updates	✓	-			✓		
Wi-Fi (AP) Mule	Connect PC to gateway access point, download machine data and upload to the cloud when offline	-	-			✓		
Wi-Fi Client	Setup gateway as a client and connect to existing infrastructure access points	-	-			✓		
Parker IoT	Integration of machine data with Parker Mobile IoT Cloud & Web Portal	-	✓			✓		
Reporting	Asset dashboard, fleet and machine historical reports, signal export	-	2 Reports (Fleet)			12+ Reports (Fleet, Operation, Health, Lifts)		

1.4.2. Service Notes

- There are two variants of 4G modems, supporting North American/Americas Bands and Europe/Australia/New Zealand/International Bands. see section 7.2 Modem and Cellular Communications for more information, please contact your Parker Representative for more information.

- Customers who sell Parker's mobile IoT solution must have a signed SaaS (Software as a Service) agreement in place. In addition, the customer must have created a EULA (End User License Agreement) and process for flow down to end users

- Customer must take delivery off all purchased units within 12 months of original purchase order date

- Billing period begins with template assignment or up to a total time of 6 mos. from receipt of gateway solution. After 6 mos. have expired, purchased solution service will commence and run for purchased period

- Customer will receive monthly renewal notifications, (beginning 6 mos.) before service expiration. Service can be renewed by ordering renewal part no. One renewal required per asset

- Service level can be altered upwards or downwards after period expires. For example, Basic can be renewed to Standard. Standard can be renewed to Premium once the current service expires.

- Overages and extra OTA usage will be billed to customer at the end of each quarter

- Gateway replacement part needs to order including the machine Master tag/PTS ID and install in the same machine for data continuity

2. Quick Start Guide

2.1. Getting Started using the Web Application for Remote Monitoring

The PVSG-IQAN gateway pairs with the Parker Mobile IoT cloud to enable several IoT services. This section is meant as a quick start to create your assets entity in the cloud. Please reference the online knowledge base for the most up to date in depth training videos and support literature for the Parker Mobile IoT services.

The knowledge base can be found at:

https://community.parker.com/technologies/iot/off-road-mobile/w/off-road-mobile-knowledge-base/

2.1.1. Requisite Information

You must have the following information available to create your asset in the Parker Mobile IoT cloud.

- Login information for the users
- The gateway's Master Tag (M-Tag) ID
- The gateway's Master Tag ID assigned to your IQAN Connect organization.

The supplier of the PVSG-IQAN gateway is the main point of contact for administering the log in information as well as making sure the Master tag has been assigned to the proper organization.

The Master ID can be found on the front of the module being installed on your vehicle as shown in Figure 3.

Master Tag ID Label

PTS ID Label

Figure 3. PTS and Master Tag IDs Location

2.1.2. Parker Mobile IoT , Users, Assets, Organizations.

First the user must log into the web portal with their credentials. To get access credentials contact your account administrator, an email/username and password will be sent to your email inbox to create a new user account.

🔗The web portal can be accessed at:

https://parkermobileiot.com/
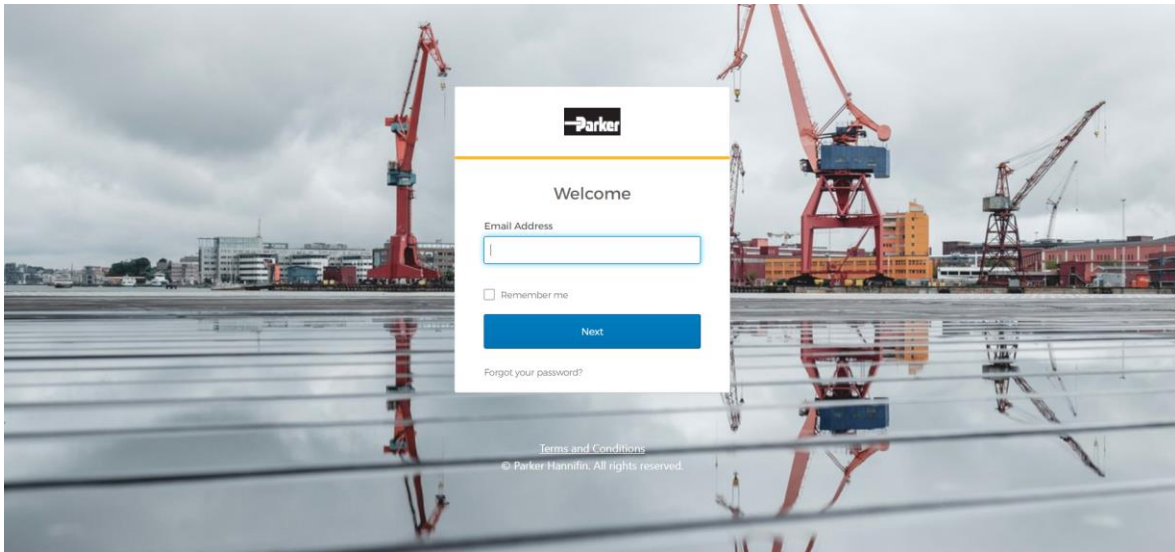
After the user has logged into their organization, they will be greeted with their fleet overview page.
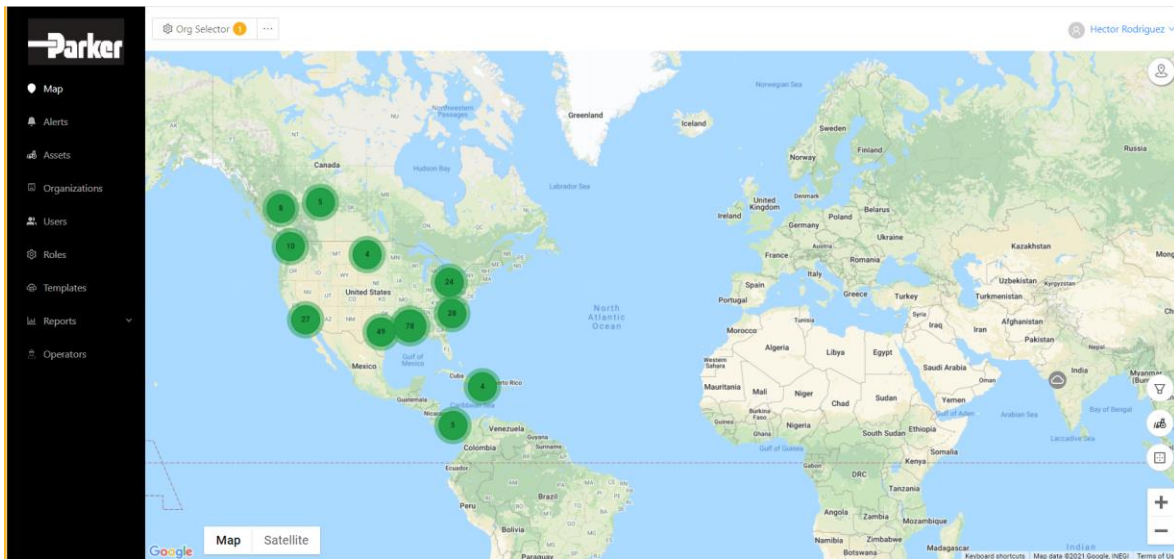
Figure 4. IQAN Connect Fleet overview page.

In order to start using the Parker Mobile IoT portal, an account administrator should create organizations, users and assets.

2.1.2.1. Create New users

A user is created and assigned a specific role in an organization. This step by step instructions shows how to create a new user in the system and grant access to Parker Mobile IoT 2.0 portal.

1. Select "Users" from the menu options.
2. Click on "+ User" button on the top right.
3. Complete the user's details:
    a. First name and Last name
    b. Email address, this is the username for login. Make sure to use a valid email for the user, this will be the user's username to access the application.
    c. Phone Number North America format (123) 456-7890   Enter: 1234567890
    d. Phone Number Int. format +44 (0)1234 123456 Enter: +44 1234123456
    e. Organization to which you want to add the new user. This list is searchable. Make sure to assign a Home organization to the user, the home organization will be the landing page with visibility to the fleet and other attributes depending on role permissions.
    f. User role
4. User will get an email with a temporary password. User needs to reset their password for first login. Temporary password could also be found in the user dialog box.
5. User goes to www.parkermobileiot.com and enters their username (email)
6. User enters their one time password
7. User confirms the one-time password and sets a new password.
8. User clicks "Change Password" and gets logged to Parker Mobile IoT 2.0
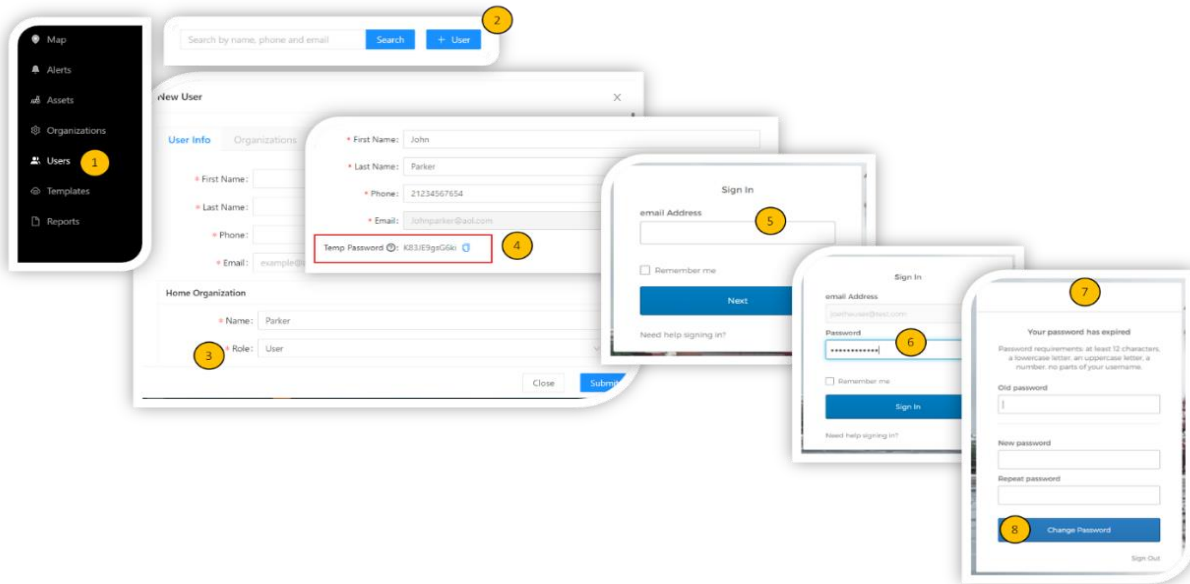
Figure 6. Create New Users Steps.

2.1.2.2. Create new Assets

Create new assets by "pairing" the machines or assets with a gateway. Administrators can create and manage the assets on the fleet from the asset page. The asset page lists all assets that belong to the selected organizations in the Org Selector.

1. Click on "Assets" from the navigation menu.
2. Click on "+ Assets" in the Assets page.
3. Select a "Master Tag" from the list of available "whitelisted" master tags. The Master Tag field provides a searchable drop-down list populated with all the Master Tags you have in your organization.
4. Enter an Asset Name and Serial Number. The nickname or asset name is a configurable field that can be edited at any time. Serial number is a configurable field that can be edited at any time, we recommend including the Master Tag or Machine VIN or identifier in this field for the on-boarding process of the machine.
5. Enter the Asset Model. We recommend adding the asset model or type in this field, and this can be edited at any time.
6. The asset will be created in your home organization. The asset can be moved to other organizations later.
7. Select a template from the list. Assets must have a assigned template to be created. The template field is populated by a list of templates in your organization, the template defines the configuration of the signals the gateway will log. It is recommended to reference the knowledge base for more details on how to configure a template.
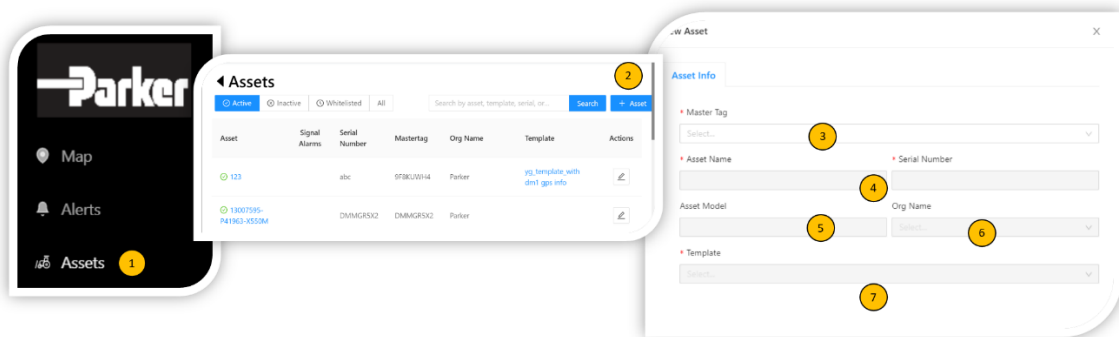
Figure 7. Create New Assets Steps.

2.1.2.3. Create Organizations or Customer Accounts

Administrator will have access to create new organization or accounts. Organizations are grouped in a hierarchical order. A "parent" organization is created by an administrator, and that "parent" organization can hold many "children" organizations.

1. Go to Organizations Menu
2. Click "+ Organization" to create a new organization
3. Complete Organization Settings
   a. Name : this is the name of the company, organizations, fleet or account that will control the assets
   b. Phone : this is the contact phone number of the organization, for support or other inquiries
   c. Street - address of the organizations
   d. City of the Organizations
   e. Zip Code of the organizations
   f. Country where the organization resides
   g. State where the organization resides
4. Complete Organization Settings
   a. Fleet view - select view between Satellite or RoadMap views as your default mode
   b. Color Branding - select your banner bar color
   c. Logo - upload a company logo file – File type must be .jpg or .png. Maximum logo dimensions are 140x68 pixels. Tip: Use a logo equal to, or less than, 140x68px to prevent scaling. Maximum file size is 100kB.
   d. Logo on Login - upload a company logo for the login page. - File type must be .jpg or .png. Maximum logo dimensions are 640x480 pixels. Maximum file size is 100kB. Tip: Use a logo equal to, or less than, 640x480px to prevent scaling. This logo will be displayed in login page only.
5. Click Submit and a new organization will be created under the parent organization
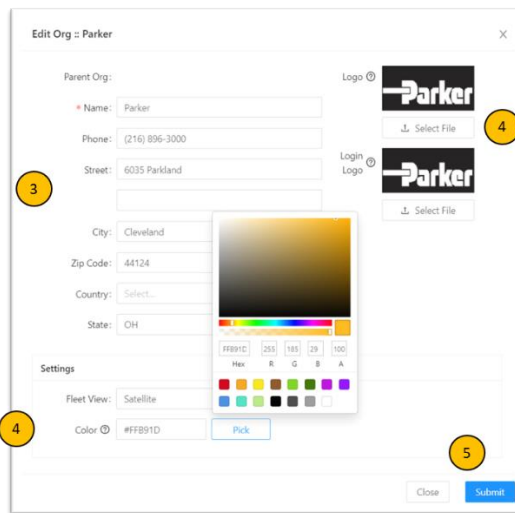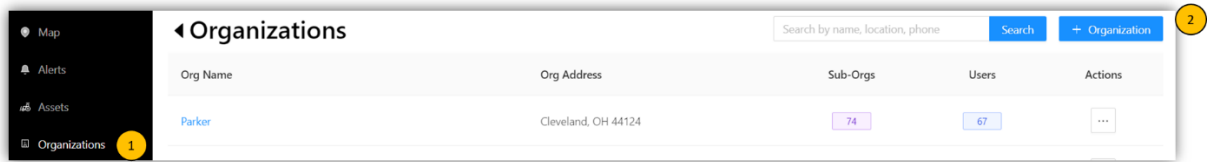
Figure 8. Create New Organizations Steps.

2.2. Getting Started with Remote Monitoring and Diagnostics with IQAN System

The PVSG-IQAN gateway allows users to remotely connect to IQAN controllers in the field over a cellular connection.

The gateway also is equipped with a Wi-Fi Access Point to remotely connect to the vehicle (only available on Premium and Basic packages. See section 1.4. Ordering Part Numbers & Accessories)

2.2.1. Requirements

- PVSG-IQAN gateway
- Cellular Coverage
- Parker Mobile IoT Service Plan subscription
- Gateway installed per Section 3 of the guide
- Gateway connected to diagnostic bus of the IQAN system

Before starting your remote connection, ensure the gateway is powered up and the status light is blinking green, indicating the gateway is connected to the IQAN Connect servers.

2.2.2. IQAN Application Requirements

The PVSG-IQAN modem support IQANdesign version 5.03 or newer versions.

Note for more detailed instructions on the requirements for the IQAN application please reference the help files within the IQAN Design software or the IQAN web forum.

🔗 IQAN User Forum Link:

https://forum.iqan.se

The gateway module must be added to the IQAN application before remote diagnostics can be performed and connected to the diagnostic bus. Select the GT gateway using the add button in the IQAN system layout canvas. The modem is listed under Gateway Modules. See Figure 6 for an example of the GT properly configured in an IQAN system.
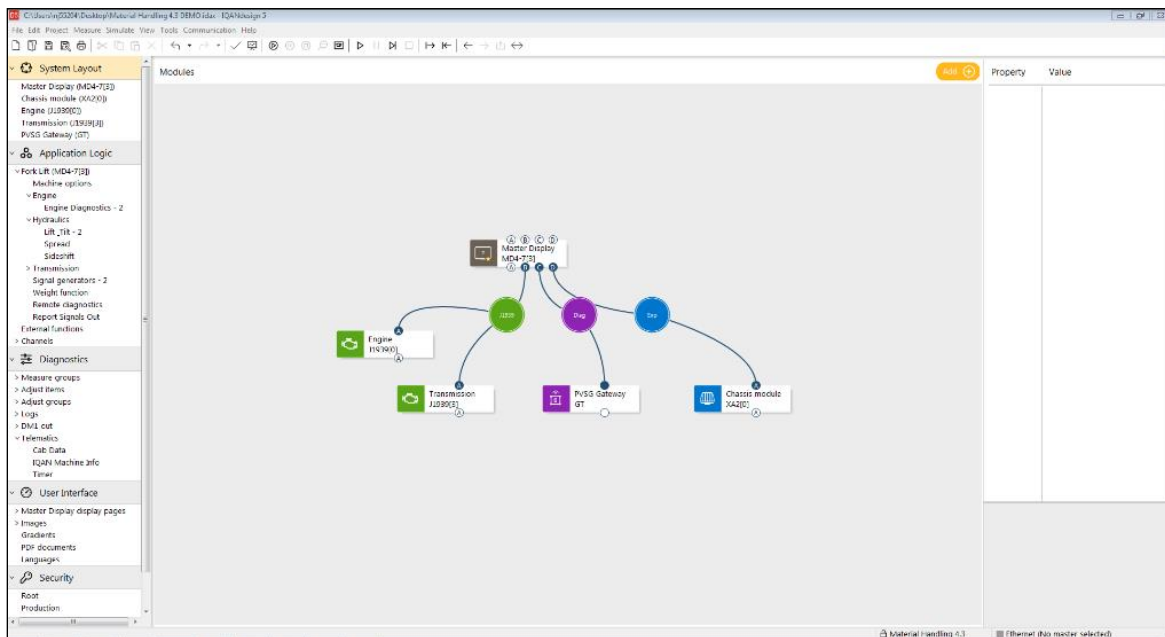
Figure 9. System Layout canvas with PVSG properly connected to the diagnostic bus

The security section of the IQAN application must also be updated before remote diagnostics can be performed. Under the security properties there are 3 options that must be setup.

Figure 10. IQAN Design security settings for remote connectivity.

The security permissions are modifiable by an OEM or integrator; however, the OEM or integrator takes full responsibility to ensure that the proper safety guards are in place to ensure that remote diagnostics cannot be performed in unsafe state.

2.2.3. Remotely Connecting to your IQAN system

After the PVSG-IQAN gateway has been installed, per section 3 and 4 of this manual, the system is ready to connect. The user must next make sure the vehicle is on, power is supplied to the system and the gateway is connected to the IQAN Connect servers with the

blinking green status light. There is no activation required, the system will connect immediately.

> ⊗ *Danger! Risk of death or injury.* Ensure that the vehicle is in a safe state before performing remote diagnostics or program updates.

The user can remotely connect with both IQANdesign and IQANrun.

Once running IQANdesign and IQANrun, select Communication from the top dropdown menu and select Connect Remote to open the Connect via Internet window. You must have IQAN Connect licenses to use this service. Contact your PVSG-IQAN supplier for details on how to acquire the licenses.

If this is the first time the user is remotely connecting to this device, they must add the IQANconnect key. This can be found locally on the machine or remotely through the mobile IoT web application.

To get the key locally from the machine, in the system menu of the IQAN module. For example, on an MD4-7 the key is displayed in the System Info page. Select *Main Menu* then

System and finally *Info*. The key can also be used as a system information channel and displayed elsewhere in the program.
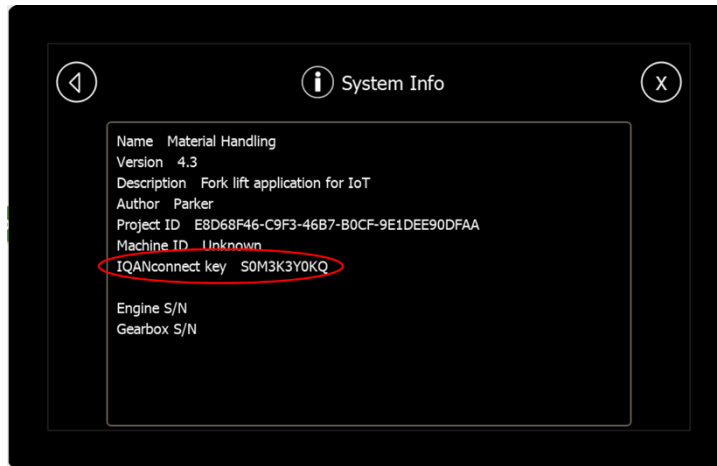
Figure 11. IQAN MD4-7 System info page.

To gather the key through the web application, first log into the web application as noted in section 2.1.2. 2.1.2. Parker Mobile IoT , Users, Assets, Organizations Assuming the user has admin privileges, follow these steps:

1. Navigate to Organization -> Asset
2. Find the asset tile and navigate to the asset details by clicking on the pencil icon
3. Locate the IQANconnect key on the page
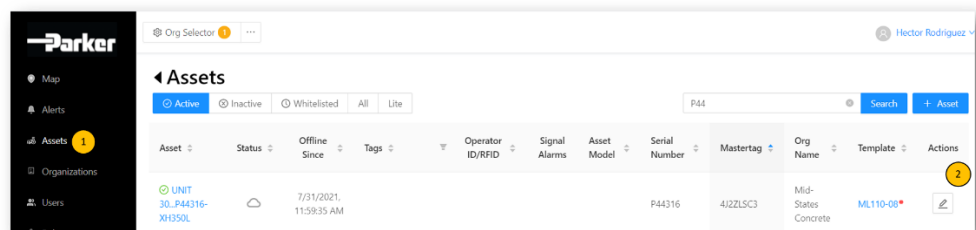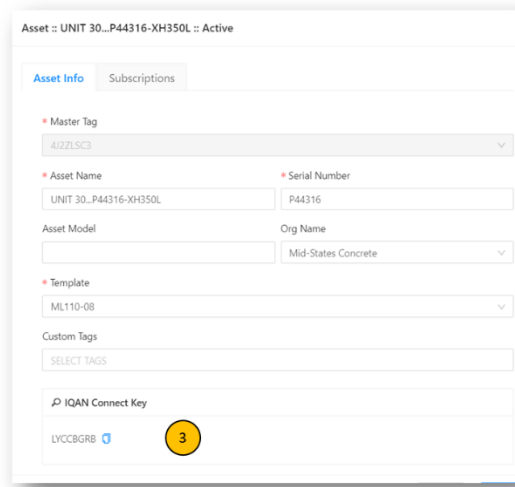
Figure 12 . Location of IQAN Connect Key in web application.

Once the user has the system key, they can enter it in IQANdesign or IQANrun by selecting the add button in the Connect via Internet window. This window will now show the Master Tag or Machine ID and if the asset is online or offline every time you access it.

An example of the window is shown in Figure 10, note Master tag I1GDENN is online.
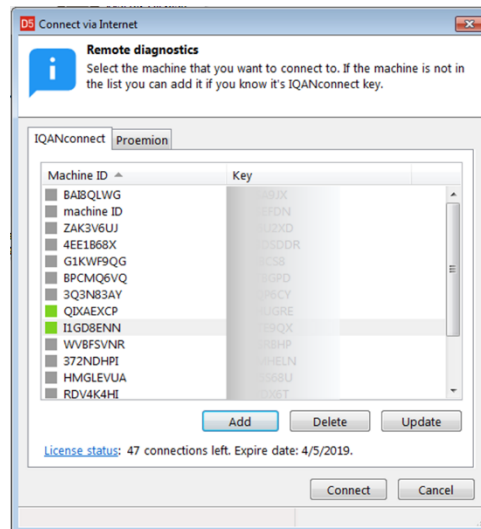
Figure 13. Location of IQANconnect Key in web application.

The user choses the asset they would like to connect to and clicks the connect button. While performing the update the system handshakes and communicates the status to the

user with popup windows or status bars. For example, the system will notify a user with a popup when there is a successful connection.
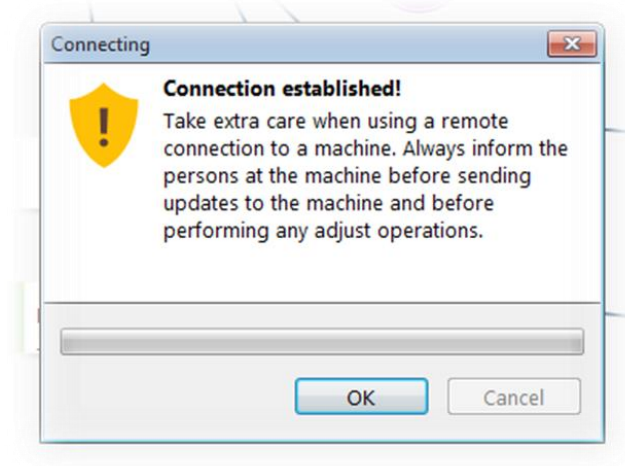
Figure 14. Connection established confirmation

Once the system confirms connection, the user can use any of the diagnostic tools as if they were plugged directly into the back of the module.

2.2.4. Connecting with IQANgo App

After the PVSG-IQAN gateway has been installed, per section 3 and 4 of this manual, the system is ready to connect. The user must next make sure the vehicle is on, power is supplied to the system and the gateway is connected to the IQANconnect servers with the blinking green status light. There is no activation required, the system will connect immediately.

> ⊗ *Danger! Risk of death or injury.* Ensure that the vehicle is in a safe state before performing remote diagnostics or program updates.

The user can remotely connect with IQANgo app for mobile devices, a user-friendly service tool for the IQAN series of controllers and displays. It enables service technicians or machine owners to connect wirelessly to IQAN modules in their machines and perform actions such as check system status, view logs, measure in real-time and change settings. IQANgo blends the great qualities of the proven IQANrun app. for tablets and the IQANsync app. for smartphones. IQANgo is available for both iOS and Android mobile devices. For more details check the IQANgo app link or download from below

> 🔗 IQANgo:
>
> https://www.iqan.se/store/iqango.

3. Mounting the PVSG-IQAN to a Vehicle

The original equipment manufacturer (OEM) or integrator must ensure the product is securely mounted to the vehicle.

For best results it is recommended that the gateway is mounted inside the cab of the vehicle, inside the front dash panel. It is recommended to place gateway upward to visually check the Master and PTS IDs when providing support.

The following guidelines are related to physically attaching the PVSG-IQAN to a vehicle:

- Secure the PVSG-IQAN with bolts in all bolt holes using Hex Head #10 or equivalent metric size (M5) bolts.
- Torque recommendation of 25-35 in-lbf (2.8 – 4 N-m)

3.1. Dimensions

The PVSG-IQAN dimensions are shown in Figure 12 below.

1.28'' / 3.25cm

1.70'' / 4.31cm

5.84'' / 14.83cm

5.25'' / 13.33cm

4.70'' / 11.93cm

BLACK PLASTIC HOUSING

FCC CERTIFICATION LABEL

6.30'' / 16.00cm

ACCESS LID

PARKER HANDLING UNIT LABEL .5"X.5"

PRODUCT LABEL
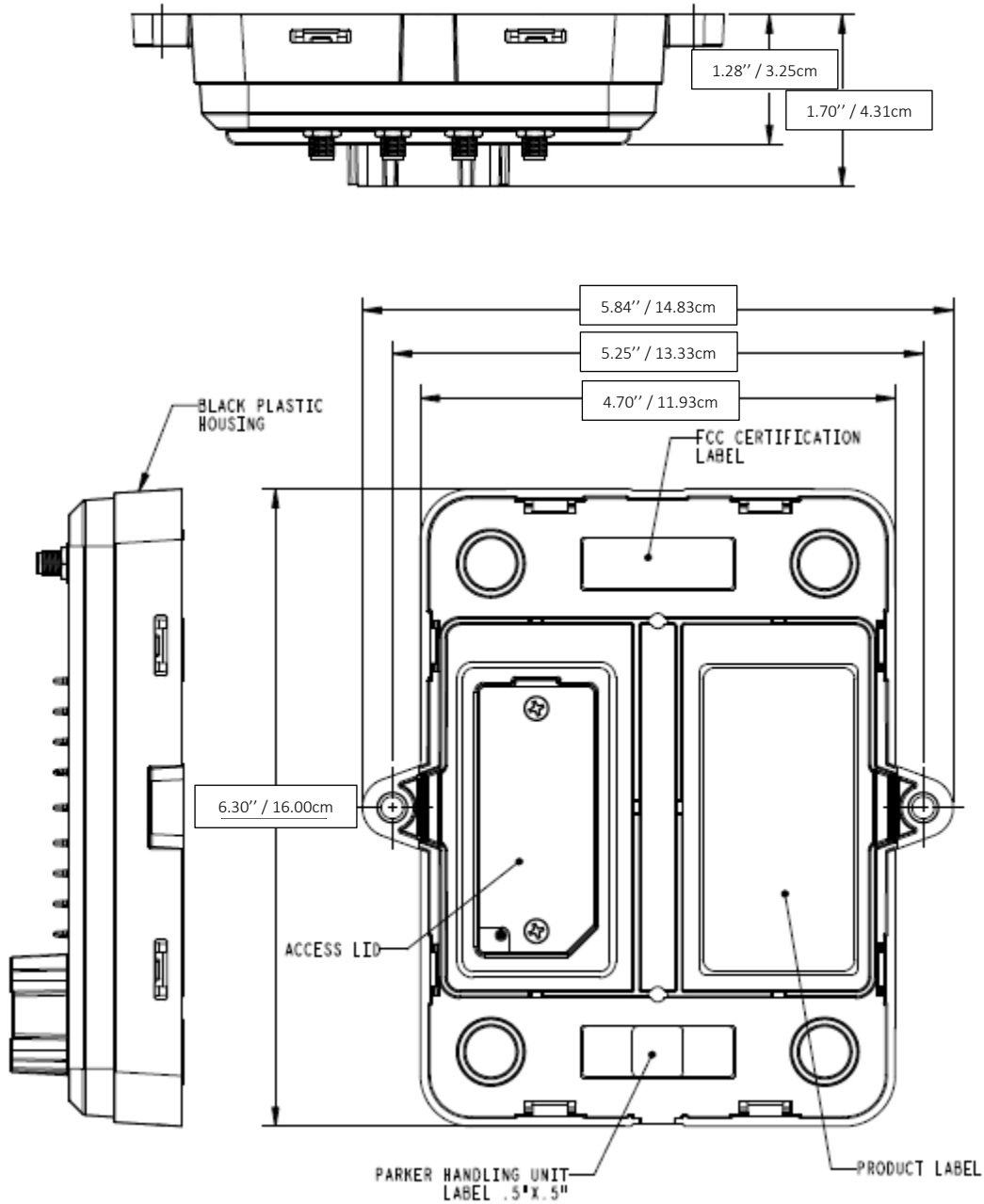
Figure 15 : PVSG-IQAN dimensions

3.2. Designing and Connecting the Vehicle Harness

The vehicle manufacturer or integrator is responsible for designing a vehicle harness that mates with the PVSG-IQAN connector(s).

The vehicle harness design depends on the following:

- How the user's inputs, outputs, communication, and power pins are configured.
- Other components on the vehicle and their physical locations.
- The routing of the harness.

Details on recommended wire diameters for use with the product connector are covered in the connector manufacturer's datasheet. Wire diameters used should be enough for the expected module current.

To use the remote diagnostic features of the PVSG-IQAN gateway, the diagnostic bus of the gateway must be properly connected to the diagnostic bus of the IQAN control system.

Once the vehicle harness is designed, it can be connected to the PVSG-IQAN simply by clicking the mating connectors into the connector ports on the PVSG-IQAN.

⚠ *Damage to Equipment!* The technician installing the connector should take special care that the connector is inserted in the correct orientation as power applied to unprotected pins can cause permanent damage to the gateway.

4. Gateway Connections (Pinout)

4.1. Power and Vehicle Communication

4.1.1. Mating Connector

The mating connector for the PVSG-IQAN is a Deutsch DT16, key A.
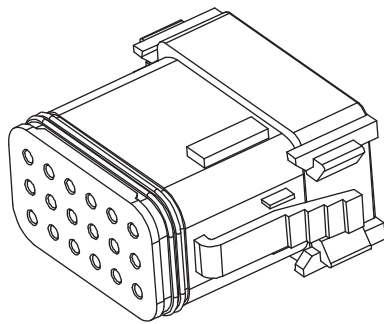
Figure 13: Mating connector

Mating Connector Part Numbers			
Connector	Housing	Terminals	Plugs (empty positions)
Main	DT16-18SA-K004	1062-16-0644	114017

The pins in the Deutsch DT16 connector are used for power, power control and CAN communication channels. In addition, to the Deutsch connector there are 4 antenna connectors.

> ⚠️ *Damage to Equipment!* The technician installing the connector should ensure that the connector is inserted in the correct orientation as power applied to unprotected pins can cause permanent damage to the gateway.

4.1.2. Pinout

The following tables shows the pin-outs for the connectors:

MAIN CONNECTOR PIN NUMBERS
SCALE 4.000
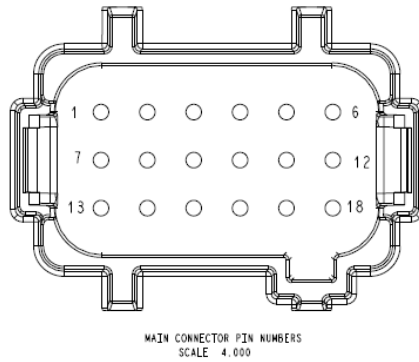
Main Connector Pin-out	
Pin	Function
1	Ethernet TXN
2	Ethernet TXP
3	Ethernet RXN
4	Ethernet RXP
5	**Battery Negative (-) Module**
6	**Unswitched Battery (+) Module**
7	CAN0/CANA - High
8	CAN0/CANA - Low
9	CAN1/CANB – High (default IQAN diagnostic bus)
10	CAN1/CANB – Low (default IQAN diagnostic bus)
11	**Keyswitch (+)**
12	*Input STB/ STG/VTD (0 to 5.66 V)*
13	USB Power
14	USB DM (D-)
15	USB DP (D+)
16	USB ID (OTG)
17	USB Ground
18	150mA Sinking Output

Figure 14: PVSG-IQAN connector

The pins with *italicized* descriptions are not used in the IQAN Connect solution. It is recommended to plug the un used pins for the connector.

The pins with **bold** descriptions are required for the device to boot.

4.1.3. CANBUS Module Block Diagram

When utilizing the PVSG-IQAN gateway with an IQAN based control system, it is very important to connect the diagnostic bus of the gateway to the diagnostic bus of the IQAN Master Controller. See Figure 15.
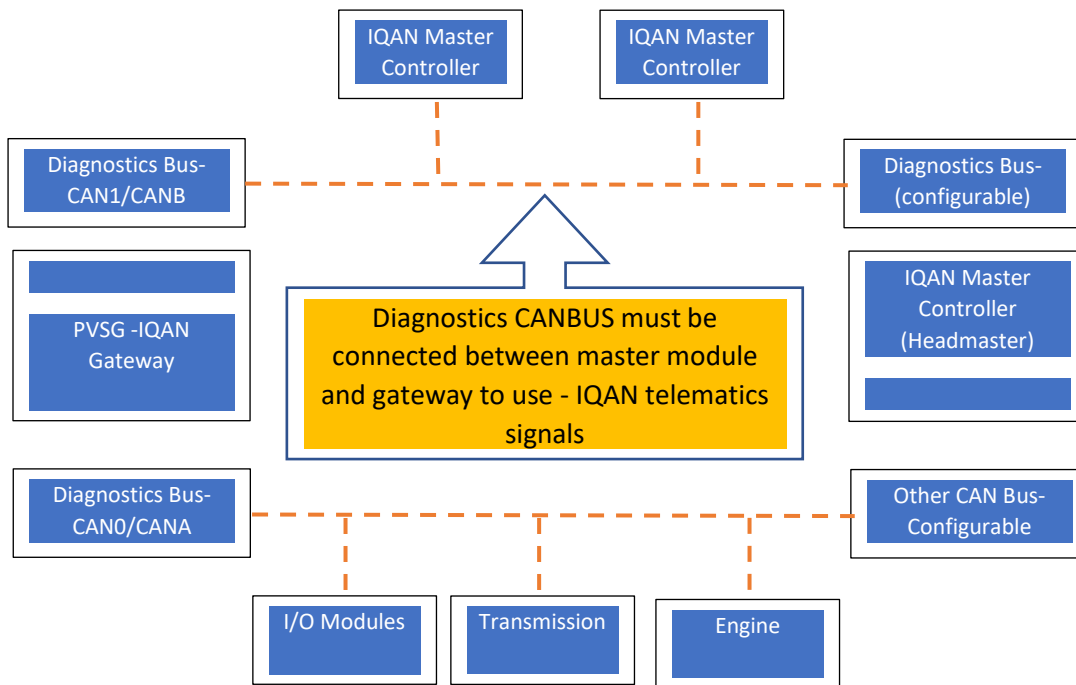
Figure 16. Block diagram of wiring PVSG-IQAN Gateway

4.2. Antenna Connections
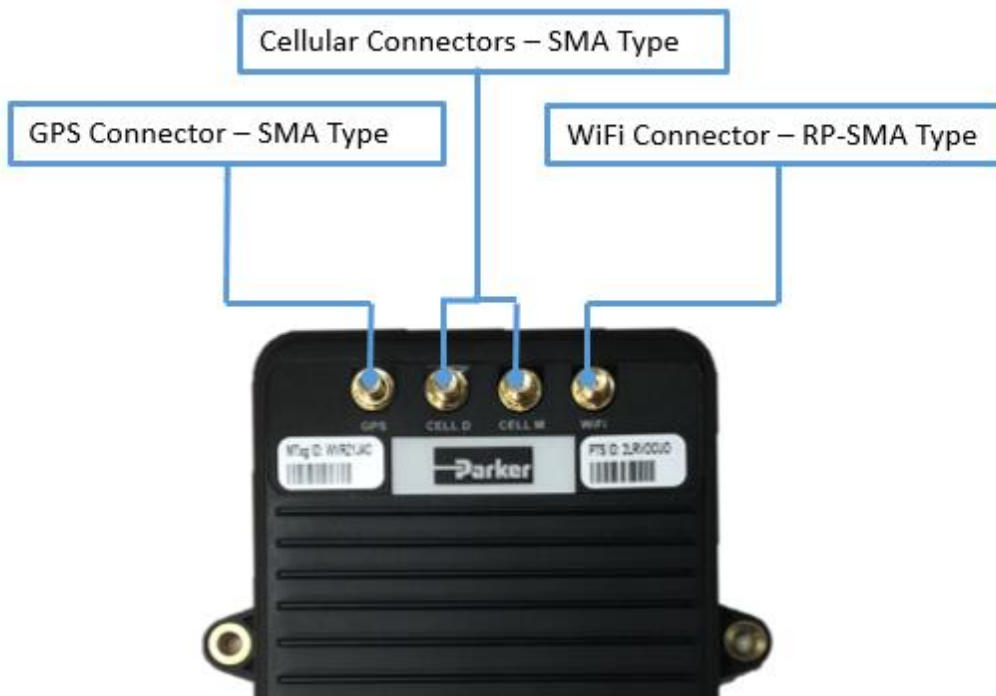
Figure 17: PVSG-IQAN antenna connections

Antenna Connectors	
Type	**Function**
SMA	GPS (left)
SMA	Cell-D (Diversity – LTE 2)
SMA	Cell-M (Main – LTE 1)
RP-SMA	Wi-Fi (right)

⚠️ *Damage to equipment!*

SMA connections should be torqued between 7 and 10 in-lbs (0.8 –1.1N) to avoid damage. Connectors are not repairable if damaged.

5. Power

The PVSG-IQAN is powered by a direct battery connection. The gateway is turned on by applying power to the power control input.

The PVSG-IQAN operates in a 12 V or 24 V system and can operate from 6.5 V up to 32 V with over-voltage protection at 36 V.

Direct Battery Input (+VBATT)				
Parameter	Min	Nom	Max	Units
Input voltage for normal operation (see note 1)	6.5	-	32	V
Maximum continuous voltage (see note 2)	-	-	36	V
Maximum peak current (see note 3) VBATT=6.5 V VBATT=13.8 V VBATT=28.0 V VBATT=32.0 V			3.17 1.50 0.74 0.64	A A A A
Recommended External Fuse	-	3	-	A

Note 1: It is strongly recommended that Pin 6 of the module be connected directly to the vehicle battery source and to utilize Pin 11 (Keyswitch) for activating and deactivating, as well as allowing a safe shut-down sequence of the module. Connecting Pin 6 to a switched battery source may result in memory corruption which, in its most severe case, may render the unit inoperable and require device reprogramming to recover. It is recommended to cycled power the gateway frequently with an ignition power source.

Note 2: Exposure to maximum voltages for extended periods may affect device reliability.

Note 3: Maximum peak current is a theoretical calculation assuming maximum current draw for each peripheral as specified in datasheets, 85% efficiency for step-down regulators, and peak cellular current during a 1-slot Tx burst at maximum power. Note the burst duration is typically 1 ms or less, thus not affecting recommended fuse ratings.

6. Power Control Input

The PVSG-IQAN has 1 power control input. The power control input activates the unit or shuts it down.

> ⚠️ *Damage to equipment!* Do not connect inputs directly to unprotected inductive loads such as solenoids or relay coils, as these can produce high voltage spikes that may damage the PVSG-IQAN. If an inductive load must be connected to an input, use protective circuitry such as a diode or transorb.

6.1. Power Control input capabilities

The PVSG-IQAN has an active-high power control digital input that must be activated to power up the unit.

The power control digital input activates the PVSG-IQAN when switched high and begin a controlled shutdown sequence (if applicable) and de-activates the module when power is removed.

It is recommended that this input be controlled by the vehicle ignition switch.

The following table provides specifications for the power control digital input:

Power Control Digital Input Specifications				
Item	Min	Nom	Max	Unit
Input voltage range	6.5	-	32	V
Input resistance	-	110k	-	Ω
Maximum voltage	-	-	36	V

6.1.1. Power Control input connections

You must be aware of the following when connecting the power control digital input:

- The power control digital input is usually connected to the vehicle ignition, but it can be connected to any power source in a system.
- To protect the harness that connects the PVSG-IQAN to the ignition, it is recommended to place a fuse of 200 mA or higher in the circuit that feeds the unit.
- If your PVSG-IQAN must always be powered, the power control digital input can be directly connected to a fused battery power input (called VBATT), which will provide constant power.
- When battery power (VBATT) is connected, and the power control digital input is inactive, the PVSG-IQAN will deactivate.

The following shows a typical power control digital input connection:
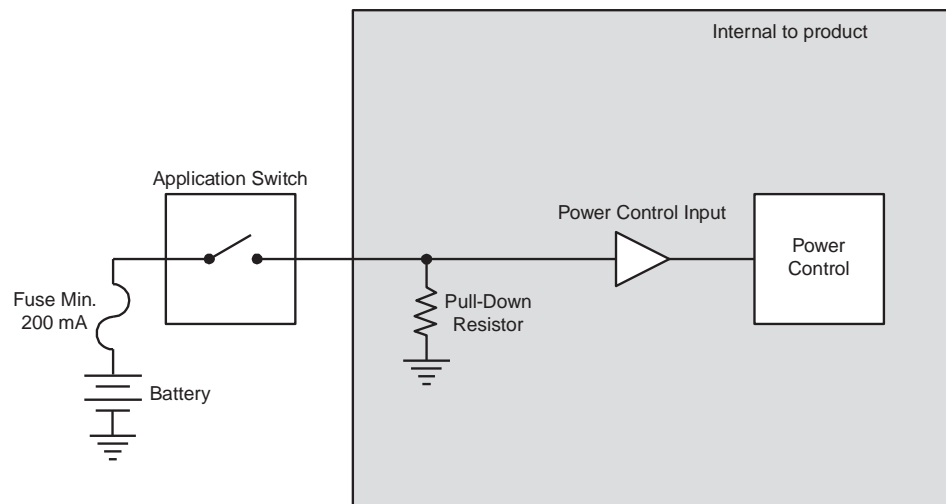
Figure 18: Power control digital input installation connections

7. Communication

The types of communication available to the PVSG-IQAN are Controller Area Network (CAN), Ethernet, Modem (GSM), Wi-Fi, and USB host/device.

7.1. Controller Area Network

The PVSG-IQAN has 2 CAN communication ports available.

The hardware provides controller area network (CAN) communication according to the SAE J1939 specification, making the PVSG-IQAN compatible with CAN-based protocol through software.

CAN communication is used to communicate the status of multiple modules that are connected in the same network.

7.1.1. CAN capabilities

The CAN communicates information at a baud rate of 250 kbps. Lack of regular CAN communication is an indication that there is either a problem with a module in the network, or a problem with the CAN bus.

7.1.2. J1939 CAN Installation Connections

The CAN connection for the PVSG-IQAN should conform to the J1939 standard. The SAE J1939 standard is a robust automotive specification that is a good CAN installation guideline even when the J1939 CAN protocol is not being used.

For a list of J1939 connection considerations, refer to the SAE J1939 specifications available through the Society for Automotive Engineers. SAE J1939-11 covers the physical aspects of the CAN bus including cable type, connector type, and cable lengths.

> ⚠ Note: The standard variant of the PVSG-IQAN **does not have a CAN termination resistor**, which is based on the assumption that the CAN bus is terminated in the harness.

The following lists the elements that are required for a J1939 CAN connection:

- CAN Cable: A shielded twisted-pair cable should be used when connecting multiple modules to the CAN bus. The cable for the J1939 CAN bus has three wires: CAN - High, CAN - Low, and CAN Shield (which connect to the corresponding CAN_HIGH, CAN_LOW, and CAN_SHIELD pins on the connector). When a module does not have a CAN_SHIELD pin, the CAN Shield should be connected to an available ground terminal attached to the negative battery. The CAN cable must have an impedance of 120 Ω.

- CAN Connectors: Industry-approved CAN connectors are manufactured by ITT Cannon and Deutsch and come in either T or Y configurations.

- CAN Harness: The CAN harness is the main backbone cable that is used to connect the CAN network. This cable cannot be longer than 40 meters **and must have a 120 Ω terminating resistor at each end**. The 120 Ω terminating resistors eliminate bus reflections and ensure proper idle-state voltage levels.

- The CAN cable is very susceptible to system noise; therefore, CAN shield must be connected as follows:
  a. Connect CAN Shield to the point of least electrical noise on the CAN bus.
  b. Connect CAN Shield as close to the center of the CAN bus as possible.
  c. Use the lowest impedance connection possible.

⚠ Note: Ground loops can damage electronic modules. The CAN Shield can only be grounded to one point on the network. If grounded to multiple points, a ground loop may occur.

- CAN Stubs: The CAN stubs cannot be longer than 1 meter, and each stub should vary in length to eliminate bus reflections and ensure proper idle state voltage levels.
- Max Number of Modules in a System: The CAN bus can handle a maximum of 30 modules in a system at one time.

The following shows a typical CAN connection using the SAE J1939 standard:
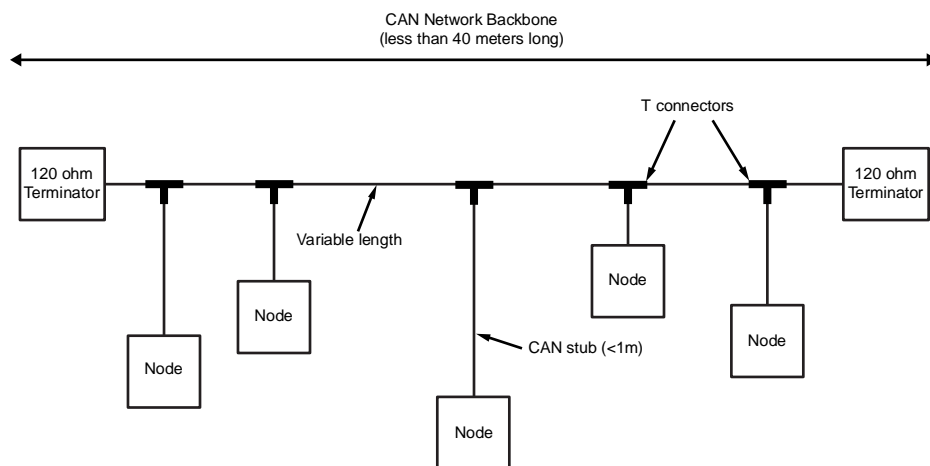
Figure 19: J1939 CAN connection

7.2. Modem and Cellular Communications

7.2.1. Modem Specifications

The main specifications of the PVSG-IQAN cellular modems interface are listed in the following table:

7.2.1.1. North America/ Central / South America

Cellular interface Americas PVSG-IQAN-C2E1M2W1U1	
Parameter	**Description**
4G LTE	Bands 12 (700MHz), 5 (850MHz), 4 (1700MHz), & 2 (1900MHz) 3GPP Release 9 Cat 1: up to 10.3 Mb/s downlink, up to 5.2 Mb/s uplink
UMTS/HSPA (3G)	850/900/1900/2100 MHz 3GPP Release 9 HSDPA cat 8: up to 7.2 Mb/s downlink HSUPA cat 6: up to 5.76Mbps uplink
GSM (2G)	GSM 850/900/1800/1900 Mhz 3GPP Release 9
GPRS (2G)	Class 33, CS1-4 – up to 107 kb/s downlink, up to 85.6 kb/s uplink
EDGE (2.5G)	Class 33, MCS1-9 – up to 296 kb/s downlink, up to 236.8 kb/s uplink
SMS	MT/MO PDU/Text mode
Protocols	TCP/IP UDP/IP HTTP/FTP/SSL
Supported antenna	External SMA connector
Certifications	AT&T, US (FCC CFR 47 part 15), Canada (IC RSS)

7.2.1.2. Europe/Australia/New Zealand/other International locations

Cellular interface Europe/Australia/New Zeeland PVSG-IQAN-C2E1M3W1U1	
Parameter	**Description**
4G LTE	Bands 20 (800MHz), 3 (1800MHz), & 7 (2600MHz) 3GPP Release 9 Cat 1: up to 10.3 Mb/s downlink, up to 5.2 Mb/s uplink
2G GSM/GPRS/EDGE:	900/1800 Mhz 3GPP Release 9
GPRS:	Class 33, CS1-4 – up to 107 kb/s downlink, up to 85.6 kb/s uplink
EDGE:	Class 33, MCS1-9 – up to 296 kb/s downlink, up to 236.8 kb/s uplink
SMS:	MT/MO PDU
Protocols:	TCP/IP, UDP/IP, HTTP/FTP/SSL
Supported Antenna:	External SMA Connector
Certifications:	AT&T, CE Mark , ACMA

7.2.2. SIM Carrier Information

The PVSG-IQAN comes supplied with a SIM card provisioned for AT&T and their partner's global networks. Figure 18 provides a list of countries where the PVSG-IQAN could have service available. *Note: for countries in group B, may require additional approval and country certifications. Gateway will operate if the country's telecommunication networks support any of the 3G or 4G bands stated in section 7.2.1 Modem Specifications. Service coverage and network frequency band support could change anytime by local authorities and carrier providers.*

Group A Countries

FC | IC | CE | (logo)

Group B Countries
(may require additional country approval)

Notes:

* Customer may not use the Wireless Service with a Device in Brazil, Ethiopia, Equatorial Guinea, Egypt, India, Northern Mariana Islands, Saudi Arabia or Turkey for a period (i) that is longer than ninety (90) days and (ii) during which the Device is not used in any other country, without AT&T's advance written authorization.

* Customer may not use the Wireless Service with a Device in Micronesia or Turkmenistan for a period (i) that is longer than ninety (90) days and (ii) during which the Device is not used in any other country, without AT&T's advance written authorization.

** Customer may not use the Wireless Service with a Device in following the provinces of Thailand: Narathiwat, Pattani and Yala

*** Customer may not use the Wireless Service with a Device in the Crimea region.

Afghanistan	Bosnia and Herzegovina	El Salvador	Hungary	Macao	Oman	Somalia	Venezuela
Åland Islands	Botswana	Estonia	Iceland	Macedonia	Pakistan	South Africa	Vietnam
Albania	Brazil*	Ethiopia*	India*	Madagascar	Panama	Spain	Virgin Islands, British
Algeria	Brunei Darussalam	Faroe Island	Indonesia	Malawi	Papua New Guinea	Sri Lanka	Zambia
American Samoa	Bulgaria	Fiji	Ireland	Malaysia	Paraguay	Swaziland	Zimbabwe
Andorra	Burkina Faso	Finland	Isle of Man	Maldives	Peru	Sweden	
Angola	Burundi	France	Israel	Mali	Philippines	Switzerland	
Anguilla	Cambodia	French Guiana	Italy	Malta	Poland	Taiwan, Province of China	
Antigua and Barbuda	Cameroon	French Polynesia (Tahiti)		Martinique	Portugal	Tajikistan	
Argentina	Canada	Gabon	Jamaica	Mauritius	Qatar	Tanzania, United	
Armenia	Cayman Islands	Gambia	Japan	Mexico	Reunion	Thailand**	
Aruba	Chad	Georgia	Jersey	Moldova	Romania	Togo	
Australia	Chile	Germany	Jordan	Monaco	Russian Federation***	Tonga	
Austria	China	Ghana	Kazakhstan	Mongolia	Rwanda	Trinidad and Tobago	
Azerbaijan	Colombia	Gibraltar	Kenya	Montenegro	Saint Lucia	Tunisia	
Bahamas	Congo	Greece	Korea, Republic of	Morocco	Saint Vincent and the Grenadines	Turkey*	
Bahrain	Congo, The Democratic Republic of	Greenland	Kuwait	Mozambique	Samoa	Turkmenistan*	
Bangladesh	Costa Rica	Grenada	Kyrgyzstan	Myanmar	San Marino	Turks and Caicos Island	
Barbados	Croatia	Guadeloupe	Lao	Namibia	Saudi Arabia*	UAE	
Belarus	Cyprus	Guam (including Northern. Mariana Islands*)	Latvia	Nepal	Senegal	Uganda	
Belgium	Czech Republic	Guatemala	Lebanon	Netherlands	Serbia	United States	
Belize	Denmark	Guernsey	Lesotho	New Zealand	Seychelles	UK	
Benin	Dominica	Guinea	Liberia	Nicaragua	Sierra Leone	Ukraine***	
Bermuda	Dominican Republic	Haiti	Liechtenstein	Niger	Singapore	Uruguay	
Bhutan	Ecuador	Honduras	Lithuania	Nigeria	Slovakia	Uzbekistan	
Bolivia	Egypt*	Hong Kong	Luxembourg	Norway	Slovenia	Vanuatu	

Figure 20: Gateway countries of operation

7.3. Wi-Fi

The PVSG-IQAN gateway will support the following Wi-Fi Services in the Premium and Basic service plans:

Figure 21: Gateway countries of operation

- IQAN WiFi Diagnostics: Connect mobile devices (PC, phone, tablet) to gateway access point, perform IQAN real time diagnostic and software OTA updates

- WiFi Mule: Connect PC to gateway access point, extract machine logs and upload the cloud when offline

- Wi-Fi Client: Setup gateway as a client and connect to existing infrastructure access points

The main specifications of the PVSG-IQAN Wi-Fi interface are listed in the following table: (*Note 1:* Certain governments do not permit operating with all available channels.)

Wi-Fi interface	
Parameter	Description
Standard	802.11 b/g/n (2.4GHz)
Channels (see note 1)	1-13
Operational modes	APN, Client, Concurrent (two simultaneous instances)
Data transfer rate	b: 11, 5.5, 2, 1 Mbps g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps n: 150, 72Mbps
Maximum transmit power	18dBm
Security	WEP64/128 WPA (TKIP, AES) WPA2 (CCMP, AES) WAPI hardware support 64/128 bit AES hardware support
Supported antenna	External RP-SMA connector
Certifications	US (FCC CFR 47 part 15) Canada (IC RSS)

7.4. GPS/GNSS Interface

The PVSG-IQAN has an onboard GPS chip for calculating geolocation information to be used throughout the cloud application. *Note: Table below shows theoretical best performances of hardware, many variables including weather, clear view from antenna to sky, number of signals on template, etc. impact performance. Application specific testing is required to confirm performance.*

GNSS Interface	
Receiver	Concurrent reception of up to 3 GNSS. 72-channel, GPS L1C/A, SBAS L1C/A, QZSS L1C/A, QZSS L1 SAIF, GLONASS L1OF, BeiDou B1I, Galileo E1B/C
Horizontal Accuracy (Position)	2.5 m (GPS&GLONASS, GPS), 4.0 m (GLONASS), 3.0 m (Beiduo)
Max Navigation Update Rate	10 Hz (GPS&GLONASS), 18 Hz (GPS, GLONASS, Beiduo)
Time to First Fix (Cold)	26 s (GPS&GLONASS), 29 s (GPS), 30 s (GLONASS), 34 s (Beiduo),
Time to First Fix (Hot)	1 s (GPS&GLONASS, GPS, GLONASS, Beiduo)
Sensitivity (Reacquisition)	-160 dBm (GPS&GLONASS), -159 dBm (GPS), -156 dBm (GLONASS), -155 dBm (Beiduo)
Sensitivity (Cold)	-148 dBm (GPS&GLONASS), -147 dBm (GPS), -145 dBm (GLONASS), -143 dBm (Beiduo)
Sensitivity (Hot)	-157 dBm (GPS&GLONASS), -156 dBm (GPS), -155 dBm (GLONASS, Beiduo)
Antenna	External – See additional Antenna documentation
Supported Signals	Latitude, Longitude, Speed Over Ground (SOG) Course Over Ground (COG), Altitude and Number of Satellites

8. Troubleshooting

8.1. Status LEDs

The PVSG-IQAN has 4 status LEDs for displaying operational modes and for troubleshooting.

Figure22: Location of LEDs

The messages displayed by the LEDs are listed in the following tables:

Status LED	
Pattern	**Description**
Red solid	Indicates error (also read during programming)
Blue heartbeat	Gateway booting, in process of establishing connection
Red heartbeat	Gateway software running, logging data, connection to IQAN Connect servers in process.
Green Heartbeat	Gateway has IP connectivity and is connected to IQAN Connect diagnostic servers.

GPS LED	
Pattern	**Description**
Red solid	Indicates error (also red during programming)
Red Slow Blink	Gateway booting, in process of booting GPS firmware
Blinking Yellow	GPS firmware booted. Searching for Satellites
Cellular LED	
Red solid	Indicates error (also red during programming)
Red Slow Blink	Software booting or no sim card installed
Yellow blink	Establishing connection with carrier
Green blink	Connected to cellular tower
Green solid	Connected to internet
Wi-Fi LED	
Red solid	Indicates error (also red during programming)
Off	Disabled
Yellow Blink	Wi-Fi client not activated
Green Solid	Wi-Fi client activated

8.2. Troubleshooting

Listed are common troubleshooting steps for the PVSG-IQAN gateway to ensure the application of the gateway is correct. If any of the steps do not solve the issue that the user is experiencing, please contact support.

8.2.1. Users gateway will not connect to a cellular network.

- If the Cellular LED is a slow red blink after more than 1 minute.
    - Call support desk ensure the factory installed SIM card has not been removed or become dislodged.
- If the gateway is stuck on the yellow blink pattern for greater than 2 minutes:
    - Check the antenna is properly attached to the correct antenna lead. If there are any extensions in the antenna ensure they have not become disconnected or damaged.
    - Occasionally when the gateway moves from one carrier network to another it requires a power cycle.
- If the cellular LED is a green blink for more than 5 minutes.
    - Ensure the device is in an area with strong cellular coverage

8.2.2. IQAN Connect remote diagnostics will not connect.

- Check to see if the status light has a green heartbeat blink. It typically takes 1-2 minutes for the gateway to connect to the IQAN Connect diagnostic servers.
- Ensure the gateway is connected to the cellular network and has IP connectivity. The cellular status light should be solid green.
- Ensure that the gateway is properly connected to the diagnostic bus of the IQAN system. Reference section 3.2 Designing and Connecting the Vehicle Harness and 4.1 Power and Vehicle Communication for additional information on how to connect the diagnostic bus.

8.2.3. Users gateway is connected but does not display data in the web application user interface.

- Check to ensure that the gateway is connected to a cellular network and has IP connectivity
- If the gateway template has been recently updated in the cloud interface it can take up to 5 minutes for the gateway to sync up with the changes made in the cloud.
- Check to ensure that the CAN networks are properly wired per section 4.1.
- Check to ensure that the CAN networks are broadcasting the signal that the user attempting to capture.
    - o Note if the IQAN diagnostic bus is not properly installed to the diagnostic bus of the gateway IQAN telematics signals will not be captured. Reference section 3.2 Designing and Connecting the Vehicle Harness and 4.1 Power and Vehicle Communication for additional information on how to connect the diagnostic bus.
- The user should check the template in the cloud interface is configured for the user's application. Some common application issues with the templates
    - o Ensure that the template is properly configured.
    - o Ensure that **all** signals in a signal collection are present on a the CANBUS. For example, if a signal collection is configured to collect 8 signals and only 7 signals are present on the attached CANBUS, **none of the signals will transmit** until that last signal is seen by the gateway logger.
    - o For more information on configuring a template in the IQAN Connect cloud interface the user should check the template knowledge base.

8.2.4. Users gateway will not show its GPS location.

- If the GPS LED is a slow red blink:
  - o Wait 1 minute for device to boot.
  - o Power cycle the gateway.
- If the GPS LED is a yellow blink
  - o Wait for 3 minutes for the firmware to fully initialize.
  - o Make sure your antenna has line of sight to the sky. GPS technology is line of sight and requires a clear view of the sky.
  - o Check to make sure the correct antenna lead is attached to the GPS connection. Check for cable breaks and loose connections.
- If the gateway is transmitting other signals, but not GPS, add the GPS mode to the template in its own signal collection to check the state of the GPS signal. See Figure 18 for the GPS mode signal definition.

Figure23. GPS Mode signal definition.

8.2.5. After reading this manual, the user is still having issues, where can they get help?

Contact the supplier of the PVSG-IQAN gateway or open a ticket with the Parker Support Help Desk 1-888-915-4357 (help) number when looking for assistance on any of the IoT product and services. Also email phsupport@parker.com for further assistance.

🔗 Parker Support Desk Site:

https://parkeriot.atlassian.net/servicedesk

Support Help Desk information and instructions

https://parkeriot.atlassian.net/servicedesk/customer/portal/4/topic/6346dba5-089d-4686-b76f-d5220d5971d9/article/862912513

9. Markings/Approvals

The PVSG-IQAN meets the following regulations.

9.1. ISO Standards/Certifications

EMC	
Radiated Emissions	CISPR 25 Method, 30 - 1000MHz, ISO 13766 Limits, FCC CFR 47 Part 15B, Class A; ICES-003
Conducted Immunity	ISO 11452-4 (BCI), 20 - 200MHz at 100mA
Radiated immunity	ISO 11452-2 (ALSE), 200MHz-2000MHz 1kHz AM 80% at 200V/m; 800-2000MHz PM at 200V/m EN 61000-4-3, 1000-6000MHz 1KHz AM 80% at 3V/m; 80-920MHz spot- check 1kHz AM 80% at 3V/m
ESD[1]	ISO 10605 powered, 8kV contact, 15kV air; unpowered 15kV contact, 25kV air
Electrical	
Reverse Polarity	-32V
Jump Start/ Over-Voltage	+36V
Short Circuit	All I/O protected against shorts to vehicle battery or ground, except pins 13-17 (unused in application)
Transient Immunity	ISO 7637-2, Pulse 1, 2a, 2b, 3a, 3b
Starting Profile	ISO 16750-2, Section 4.6.3
Load Dump	ISO 16750-2, Section 4.6.4, 40V clamped
Mechanical	
Mechanical Shock	50G, 11ms, half-sine pulse, 100 cycles in each of 6 directions
Random Vibration[1]	27.8 m/s2 RMS (~2.84 Grms), 10-2000 Hz, 8 hours in each of 3 axes
Bench Handling Shock[1]	1000mm height, drop in all 3 axes in both directions

Climate	
Storage Temperature	-40C 4 hours; +85C 4 hours
Combined Environment	-40C to +70C, 98% RH, 24-hour cycle, 10 days
Air-to-Air Thermal Shock	-40C to +85C, 5 min dwell, 200 cycles
Ingress Protection[1]	ISO 20653, IP6K7
Solar Radiation[2]	SAE J2527, Xenon Weatherometer, 210 hours
Salt Spray[2]	IEC 60068-2-52, Test Kb, Severity Level 3
Chemical Resistance	Brake Fluid, Gasoline, Diesel Fuel, Isopropyl Alcohol, Denatured Alcohol, Paint Thinner, Mineral Spirits, Battery Acid, Engine Oil, Hydraulic Oil, Zip Strip, Bleach, Simple Green All Purpose Cleaner, Ammonia

[1]Testing performed on PVSG-IQAN

[2]Testing performed on other product using same materials

9.2. FCC Compliance – NA Gateway

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. The external antenna(s) used for this module must provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC's multi-transmitter policy.

This device may contain one or more of the following FCC compliant modules:

- Contains FCC ID: ORR-HEDW131
- Contains FCC ID: XPY1EHM44NN

9.3. IC Compliance – NA Gateway

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This device may contain one or more of the following IC compliant modules:

- Contains IC ID: 21708-HEDW131
- Contains IC ID: 8595A-1EHM44NN

9.4. EU Declaration of conformity – NA Gateway

Parker *VANSCO*

EU Declaration of Conformity

This document is only valid when included with the corresponding Model/Product Listing

Declaration Item	Declaration Information
Issued in accordance with the following directives	2014/53/EU and 2011/65/EU (RoHS)
Model/Product Listing	See latest revision and issue of Model/Product Listing 1064F03-02
Year of affixing CE marking	2017
Brand	Parker Hannifin Canada
Harmonized Standards	ISO 13766:2006, EN 14982:2009, EN 13309:2010, EN 50498:2010, EN 301 489-17 V3.1.1, EN 301-489-1 V2.1.1, EN 301-489-52 V1.1.0, EN 300-328 V2.1.1, EN 301-511 V9.0.2, EN 301-908-1 V11.1.1, EN 301-908-2 V11.1.1, EN 60950-1:2006 +A1:2010 +A2:2013, EN62311:2008, EN 50581:2012
Manufacturer	HED Inc 2120 Constitution Avenue Hartford, WI 53027 USA (262) 673-9450
Technical Documentation File maintained at	Manufacturer's location

I, the Undersigned, hereby declare that the referenced equipment conforms to the referenced Directives and Standards, when installed in accordance with the manufacturer's specifications

Signature: _____
Eduardo Schor
Engineering Manager

Date: 2018-05-15
Executed on

Drawing Number	ECN	By	Check	Approved	Date
1064F03-01.00A	----	L.Kovacevic	T.Stampe	E.Schor	2018-05-15

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EU Declaration of Conformity – Model/Product Listing

This document is only valid when included with the corresponding EU DoC

Declaration Item	Declaration Information
EU DoC	See latest revision and issue of EU DoC 1064F03-01

Part Number	Model/Product Listing
164632	VA 1064001R00 MSG IoT GATEWAY 3YR
164633	VA 1064002R00 MSG IoT GATEWAY 5YR
164634	VA 1064003R00 MSG IoT GATEWAY SP
165340	VA 1064004R00 MSG IoT GATEWAY 1YR
165341	VA 1064005R00 MSG IoT GATEWAY 6MO

Drawing Number	ECN	By	Check	Approved	Date
1064F03-02.00A	----	C.Picklyk	T.Stampe	E.Schor	2018-05-15

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Rd229-2   Confidential   Page 1 of 1

9.5. EU Declaration of conformity – EU Gateway

EU Declaration of Conformity

This document is only valid when included with the corresponding Model/Product Listing

Declaration Item	Declaration Information
Issued in accordance with the following directives	2014/53/EU (Radio Equipment Directive) and 2011/65/EU (RoHS)
Model/Product Listing	See latest revision and issue of Model/Product Listing 1087F02-02
Year of affixing CE marking	2020
Brand	Parker Hannifin Canada
Harmonized Standards	EN 300 328 V2.1.1, EN 301 511 V12.5.1, EN 301 908-1 V11.1.1, EN 301 908-1 V13.1.1, EN 301 908-13 V11.1.2, EN 301 908-13 V13.1.1, EN 3 3 413 V1.1.1, EN 301 489-1 V2.1.1, EN 301 489-1 V2.2.0, EN 301 489-17 V3.1.1, EN 301 489-17 V3.2.0, EN 301 489-19 V2.1.0, EN 301 489-52 V1.1.0, EN 13309:2010, EN 14982:2009, EN 50498:2010, ISO 13766:2006, EN 60950-1:2006 + A1:2010 + A2:2013, EN 62311:2008, EN 62368-1:2014, EN 62479:2010, EN 50581:2012
Manufacturer	HED Inc 2120 Constitution Avenue Hartford, WI 53027 USA (262) 673-9450
Technical Documentation File maintained at	Manufacturer's location

I, the Undersigned, hereby declare that the referenced equipment conforms to the referenced Directives and Standards, when installed in accordance with the manufacturer's specifications

Signature

Shawn Hughes
Engineering Manager

Date

Executed on

July 20, 2020

Drawing Number	ECN	By	Check	Approved	Date
1087F02-01.00A	66992	J. Penner	T. Stampe	S. Hughes	July-20-2020

EU Declaration of Conformity – Model/Product Listing

This document is only valid when included with the corresponding EU DoC

Declaration Item	Declaration Information
EU DoC	See latest revision and issue of EU DoC 1087F02-01

Part Number	Model/Product Listing
167990	VA 1087001R00 MSG IoT GATEWAY 4G EU 1YR
167991	VA 1087002R00 MSG IoT GATEWAY 4G EU 2YR
167992	VA 1087003R00 MSG IoT GATEWAY 4G EU 3YR
167993	VA 1087004R00 MSG IoT GATEWAY 4G EU SP
167998	VA 1087005R00 MSG IoT GATEWAY 4G EU 1YR OTA
167999	VA 1087006R00 MSG IoT GATEWAY 4G EU 1YR LD
168000	VA 1087007R00 MSG IoT GATEWAY 4G EU 2YR LD
168001	VA 1087008R00 MSG IoT GATEWAY 4G EU 3YR LD

| Drawing Number	ECN	By	Check	Approved	Date
1087F02-02.00A	66992	J. Penner	T. Stampe	S. Hughes	July-20-2020
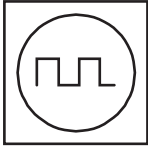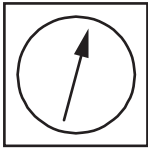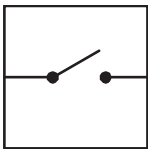
10. Appendix

10.1.   Diagram conventions

The following symbols are used in the schematic diagrams in this document:

Symbol	Meaning
	General input
	General output
	Frequency input
	Analog input
	Frequency sensor
	Pulse sensor
	Resistive sensor
	General sensor
	Application switch
	Load
	Pull-down resistor
	Pull-up resistor

Symbol	Meaning
	Battery
	Fuse
	Resistor
	Ground
	Chassis ground

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