Owner Manual

Cloud Based Remote Monitoring System

PC500CL (Spec A)

PC550CL (Spec A)

PowerCommand Cloud™ Web App

PowerCommand Cloud™ iOS Mobile App

PowerCommand Cloud™ Android Mobile App

Table of Contents

1 Important Safety Instructions

1.1 Warning, Caution, and Note Styles Used in This Manual

The following safety styles and symbols found throughout this manual indicate potentially hazardous conditions to the operator, service personnel, or equipment.

⚠ DANGER
Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

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

⚠ CAUTION
Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

NOTICE
Indicates information considered important, but not hazard-related (e.g., messages relating to property damage).

1.2 General Safety Precautions

The PowerCommand 500/550 Cloud Link Remote Monitoring network can be used to remotely monitor and control power transfer equipment, such as transfer switches, and start and stop generator sets. All of the safety precautions for the equipment being monitored and controlled by the network must be observed. Refer to the appropriate Operator Manual for important safety precautions.

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2 Introduction

2.1 About this Manual

This Owner Manual provides the instructions necessary for operating, installing, and troubleshooting the PowerCommand network.

2.2 List of Abbreviations and Acronyms

TABLE 1.   ABBREVIATION AND ACRONYM DEFINITIONS

Abbreviation or Acronym	Definition
AC	Alternating Current
ATS	Automatic Transfer Switch
BMS	Building Management System
CCM	Custom Communication Module
CDMA	Code Division Multiple Access
CSV	Comma-Separated Values
DC	Direct Current
GSM	Global System for Mobile
I/O	Input/Output
IMEI	International Mobile Equipment Identity
LED	Light Emitting Diode
MEID	Mobile Equipment Identifier
NMS	Network Management System
OTG	On The Go
PC	PowerCommand
PCC	Power Command Control
PDU	Protocol Data Units
RTU	Remote Terminal Unit
SD	Secure Digital
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SSL	Secure Socket Layer
TCP/IP	Transmission Control Protocol/Internet Protocol

Abbreviation or Acronym	Definition
UI	User Interface
USB	Universal Serial Bus
VDC	Volts Direct Current

2.3   How to Obtain Service

When the PC500/550 Cloud Link requires servicing, contact your nearest authorized Cummins Inc. distributor. To locate your local Cummins Inc. distributor, refer to **www.power.cummins.com** and select Distributor Locator. When contacting your distributor, always supply the complete model and serial number.

2.3.1   In North America

Call 1-800-CUMMINS™ (1-800-286-6467) for the nearest Cummins Inc. distributor in the United States or Canada. Press 1 (option 1) to be automatically connected.

If unable to contact a distributor using the automated service, consult the Yellow Pages. Typically, our distributors are listed under: generators - electric.

2.3.2   Outside North America

Call Cummins Inc. at +01 763 5745000 from 7:30 AM to 4:00 PM (Central Standard Time), Monday through Friday.

3 Description

3.1 Models

The following table shows the features and functionality of the PC500/PC550 Cloud Link, as well as the differences between the PC500 Cloud Link and PC550 Cloud Link.

Feature/Functionality	PC500 Cloud Link	PC550 Cloud Link
Number of Devices Supported	Up to 2 Devices plus 1 wired device (any combination)	Up to 12 Devices plus 1 wired device (any combination) Maximum 3 I/O devices
Supported Device Types	Generator Set, ATS, CCM-T, CCM-G, AUX101/102	Generator Set, ATS, CCM-T, CCM-G, AUX101/102
Inputs/Outputs (I/O)	2 Discrete Inputs, 1 Resistive Input	2 Discrete Inputs, 1 Resistive Input
Expandable I/O	AUX101: 8 Configurable Inputs AUX102: 4 Non-configurable Discrete Inputs	AUX101: 8 Configurable Inputs AUX102: 4 Non-configurable Discrete Inputs
Connection to Supported Devices	Modbus RTU, Wired Generator Set	Modbus RTU, Wired Generator Set
Data Access	PowerCommandCloud Web App	PowerCommandCloud Web App
Certifications/Compliance	UL, CSA, CE, FCC, RoHS	UL, CSA, CE, FCC, RoHS

Both the PC500 Cloud Link and PC550 Cloud Link can connect to Internet through Ethernet or 3G GSM.

3.2 Cloud Based Remote Monitoring System

The Cloud Link device is setup and configured locally, to work with generator sets, automatic transfer switches (ATS), and sensors. Information from the Cloud Link device is sent to and stored on a cloud based server. The PowerCommand Cloud web application allows for viewing of that information via the internet. Manual operations can also be carried out via the PowerCommand Cloud and communicated to the connected generator sets, and automatic transfer switches.
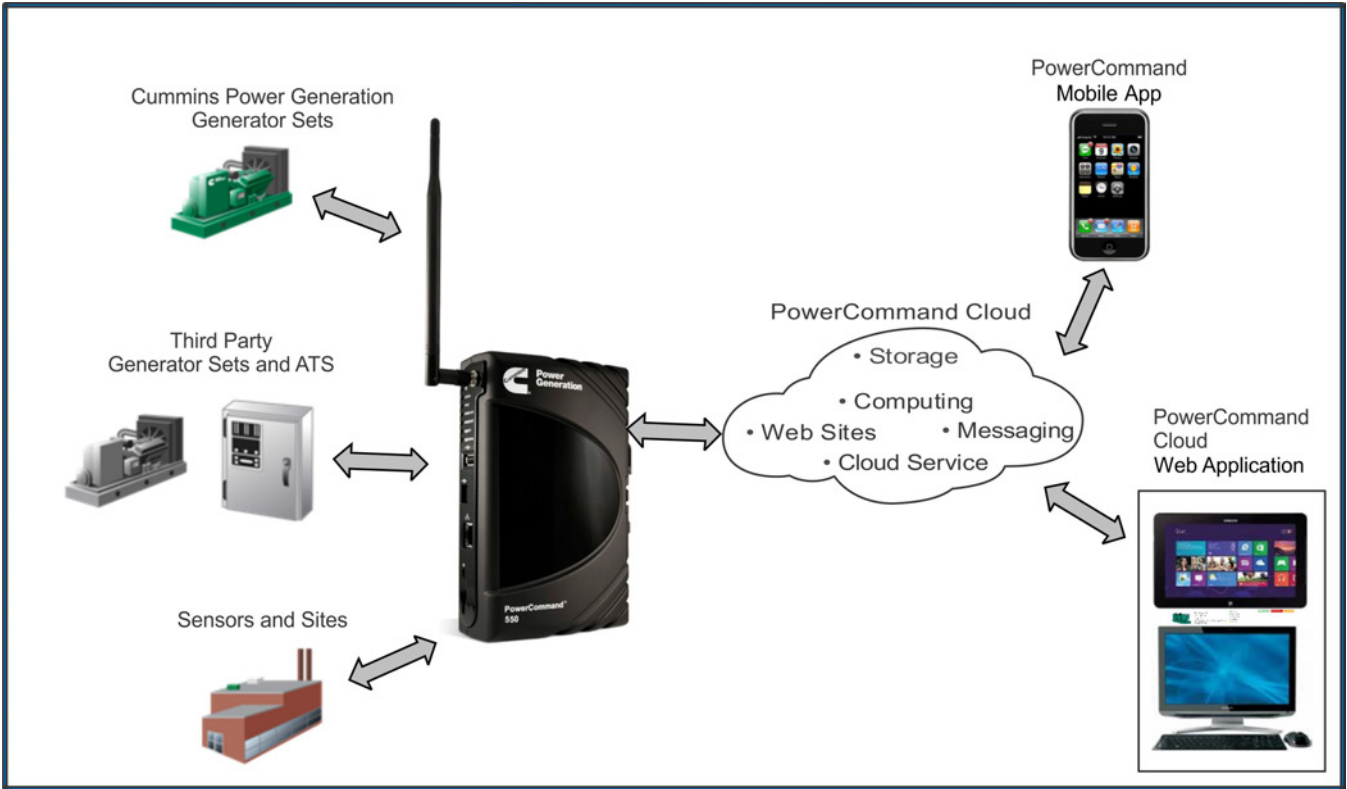
FIGURE 1.   REMOTE MONITORING SYSTEM

3.3   Controls

The remote monitoring system supports the following generator set controls.

Control	Communication
PCC 1301	Modbus RTU
PCC 1302, PC1.1	Modbus RTU
PCC 2300, PC 2.2, PC 2.3	Modbus RTU
PCC 3300, PC 3.3	Modbus RTU
PS0500	Modbus RTU
PCC 2100	Modbus RTU through Modlon Gateway
PCC 3100	Modbus RTU through Modlon Gateway
PCC 3200	Modbus RTU through Modlon Gateway
PCC 3201	Modbus RTU through Modlon Gateway
Detector and some third party controls	Integrated discrete inputs and outputs

The remote monitoring system supports the following ATS controls.

Control	Communication
OTPC	Modbus RTU through Modlon Gateway
OHPC	Modbus RTU through Modlon Gateway
CHPC	Modbus RTU through Modlon Gateway
BTPC	Modbus RTU through Modlon Gateway
CCM-T	Modbus RTU through Modlon Gateway

The PC500/550 Cloud Link reads I/Os from third party generator set and ATS controls either by directly connecting the I/Os to the PC500/550 Cloud Link or connecting to an AUX101 I/O device, which can then be read over Modbus RTU.

3.4   PC500/550 Cloud Link

No.	Description	No.	Description
1	LED Indicators	4	TB2
2	Antenna Connection	5	Reset Button
3	TB1	6	Ports
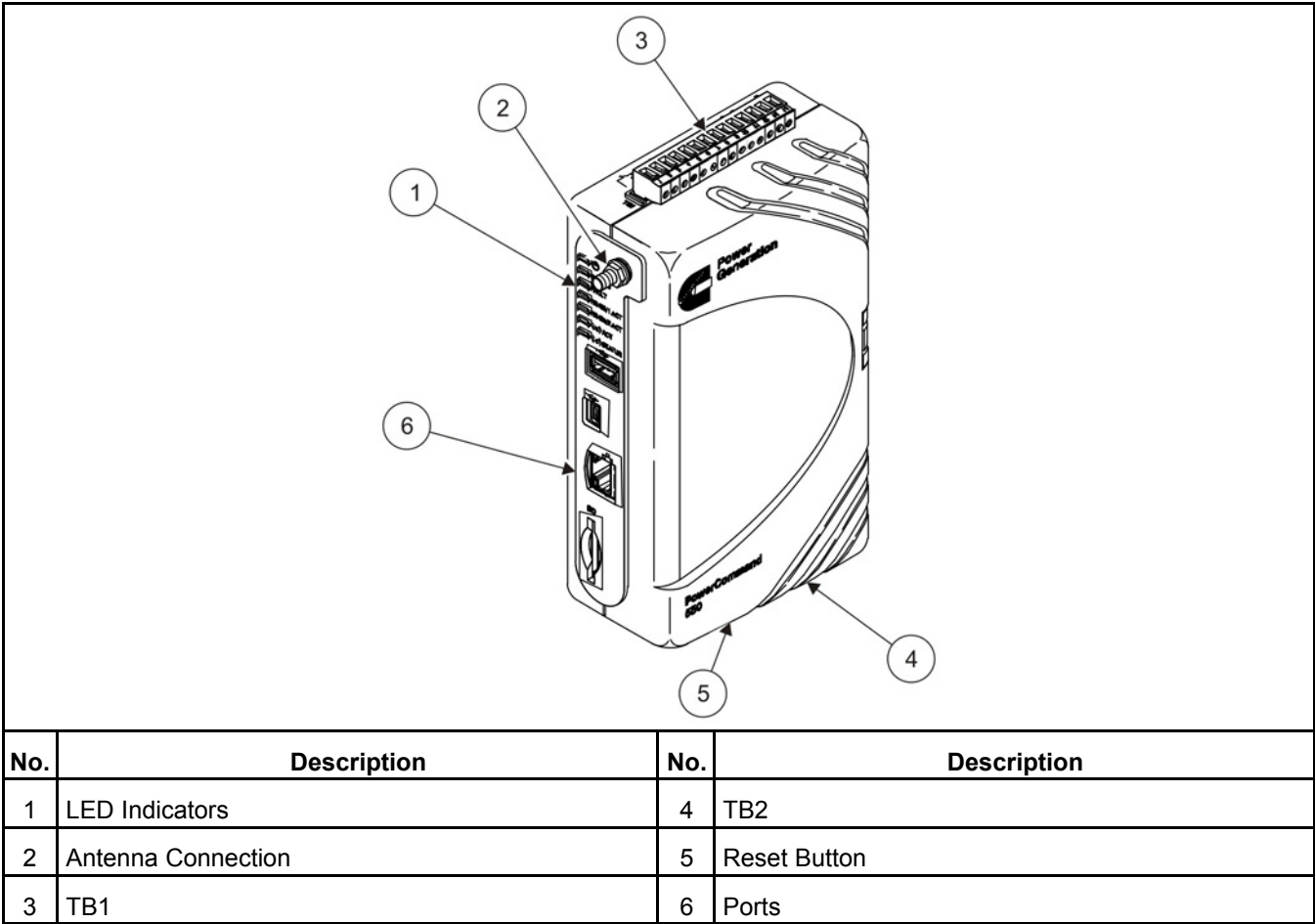
FIGURE 2.   PC500/550 CLOUD LINK

3.4.1   LED Indicators

No.	Name	Description
1	Power	Illuminates (green) when the PC500/550 Cloud Link power is on.
2	STATUS	Blinks (green) at a 1-per-second rate to indicate application firmware on PC500/550 Cloud Link is operating correctly. Blinks (green) at a 5-per-second rate to indicate connectivity with PowerCommand Cloud
3	FAULT	Illuminates (red) when there is an active error fault on PC500/550 Cloud Link.
4	RS485/1 ACT	Blinks (yellow) to indicate RS485/1 activity.
5	RS485/2 ACT	Blinks (yellow) to indicate RS485/2 activity.
6	STATUS	Illuminates (green) when wireless module is installed, enabled, and detecting adequate signal strength.
7	ACT	Blinks (green) to indicate wireless activity.

FIGURE 3.   LED INDICATORS

3.4.2   TB1
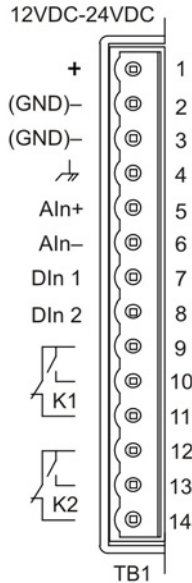
No.	Name	Description
1	+	Input from 12–24 VDC power supply or B+ battery.
2	(GND)–	Ground from power supply or B– battery.
3	(GND)–	Ground from power supply or B– battery.
4	Chassis Ground	Connected to an earth grounded metal surface.
5	AIn+	Analog resistive input connection for a resistive sensor into the PC500/550 Cloud Link (600–2500 ohms).
6	AIn–	Return for analog resistive input connection for a resistive sensor into the PC500/550 Cloud Link (600–2500 ohms).
7	D In 1	Isolated 'open-collector' type discrete input activated when connected to the PC500/550 Cloud Link GND (power supply or B–). Wired Generator Set - Generator Run Status.
8	D In 2	Isolated 'open-collector' type discrete input activated when connected to the PC500/550 Cloud Link GND (power supply or B–). Wired Generator Set - Common Alarm.
9	K1	Wired Generator Set - Start/Stop Common.
10	K1	Wired Generator Set - Start/Stop Normally Open.
11	K1	Not used.
12	K2	Wired Generator Set - Fault Reset Common.
13	K2	Wired Generator Set - Fault Reset Normally Open.
14	K2	Not used.

FIGURE 4.   TB1

3.4.3   TB2

No.	Name	Description
1	RS485/1+	The positive referenced differential signal for RS485/1.
2	RS485/1–	The negative referenced differential signal for RS485/1.
3	(GND)	RS485/1 ground connection between PC500/550 Cloud Link and monitored devices. Used with a separate power supply.
4	Chassis Ground	Connected to shield of the Modbus RTU cable.
5	NC	Not used.
6	RS485/2+	The positive referenced differential signal for RS485/2.
7	RS485/2–	The negative referenced differential signal for RS485/2.
8	GND	RS485/2 ground connection between PC500/550 Cloud Link and monitored devices. Used with a separate power supply.
9	Chassis Ground	Connected to shield of the Modbus RTU cable.

FIGURE 5.   TB2

3.4.4   Reset Button

The **Reset** button is located above TB2. Pressing the button cycles power to the processor.

NOTICE
Factory settings are not reset.

3.4.5   Ports

No.	Name	Description
1	USB	Not used.
2	USB Mini	Direct connection to a PC (used for initial configuration of the PC500/550 Cloud Link).
3	Ethernet	Connection to network. Supports IEEE 10 BASE-T and 100 BASE-TX standards.
4	SD Card Slot	Not used.

FIGURE 6.   PORTS

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4 System Functions and Features

4.1 Gateway Device User Interface

The PC500/550 Cloud Link has a web-based user interface that can be accessed over a TCP/IP connection via Internet Explorer or a USB connection. This is used to setup and configure the PC500/550 Cloud Link device.

4.2 PowerCommand Cloud User Interface

The PowerCommand Cloud can be accessed at https://portal.powercommandcloud.com. This web application displays Accounts and Sites; Assets, Sensors, and Cloud Link status; data and event logs; and manual controls for linked assets. Initial PowerCommand Cloud access for customer accounts is granted by your Cummins Distributor or Dealer. Account Owners can also invite new users to their accounts.

4.3 Modbus RTU

Modbus remote terminal unit (RTU) is the serial communication protocol that the PC500/550 Cloud Link uses to communicate with generator set, ATS, and AUX101/102 controls. There are 2 Modbus channels on the Cloud Link that allow for communication to a maximum of 2 devices on the PC500 Cloud Link, and 12 devices on the PC550 Cloud Link. Devices can be divided between the 2 channels. Each channel is capable of handling 12 devices but the total of number of devices on both channels cannot exceed 12. No more than 3 AUX101/102 devices can be configured in the system.

4.4 Wired Generator

Wired Generator allows a PC500/PC550 Cloud Link unit to interact with a single generator that does not have modbus communication capability. Both discrete inputs and both discrete outputs are needed to use this feature so those cannot be used for sensors. A wired generator will have basic monitoring including run status and fault status, as well as basic controls of run/stop, and fault reset. A wired generator will retain all other features of the PowerCommand Cloud including remote commands, event notifications, and exercise schedule.

4.5 Notifications

The PowerCommand Cloud web application supports Email notifications through SMTP (email). Email notifications are setup in the My Profile section of the PowerCommand Cloud web application. In order to receive notifications, Email notifications must be enabled, and the user must select the account or accounts for which they would like to receive notifications. Users can also select the event severity for which they would like to receive notifications (fault events, warning events, and informational events). Verify the Email address in your profile is accurate. Notifications include all of the details of an event (time stamp, source, event type, and description).
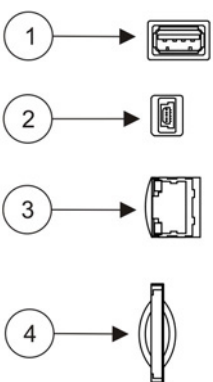
The PowerCommand Cloud mobile application supports push notifications via the mobile device. You're email notification settings from the web application are carried over for the push notifications on the mobile application. For example, Email notifications must be enabled, and you have to select the account (s) and severity level for notifications in order to receive push notifications.

4.6 Data Trending

The PowerCommand Cloud web application can generate data trending graphs for a device which contain all data on selected parameters over a specified time period. All data trending graphs are handled in the PowerCommand Cloud Web Application and all data is stored in a cloud server. The data can also be exported in CSV format.

A graph can be generated for a device that contains selected parameters from the stored data log over a selectable time period (Past 1 Hour, Past 24 Hours, Past 7 days, Past 30 days). Data can be exported for a custom range of dates, greater than 30 days if desired.

4.7 Sensors

The PC500/550 Cloud Link supports the monitoring of analog and discrete sensors. Sensors are configured in the setup gateway and displayed on the PowerCommand Cloud web application.

- Analog sensors are used to measure quantity. Examples of analog sensors are fuel, temperature, pressure, and voltage sensors.
- Discrete sensors only have 2 values which are used to read on/off status. Examples of discrete sensors are generator set run status, switch on/off status, and door open/close status.

Sensors that have been configured are displayed on the home page and device details under Site IOs.

The PC500/550 Cloud Link has 3 on-board inputs:

- 2 discrete inputs
- 1 analog resistive input (600–2500Ω)

When required, an AUX101/102 can be used to expand the PC500/550 Cloud Link input capabilities. No more than 3 AUX101/102 devices can be configured.

The AUX101 provides:

- 8 analog/discrete inputs (configurable)

The AUX102 provides:

- 4 discrete inputs (not configurable)

4.8 Exercise Schedule

The PowerCommand Cloud web application has a built in exercise schedule. You can enable, set, and update the exercise schedule remotely from the PowerCommand Cloud website. The exercise schedule configuration is then sent and stored in the PC500/550 Cloud Link connected to that asset.

NOTICE
Setting an exercise schedule via the PowerCommand Cloud will not overwrite or disable any existing exercise hardware such as an automatic transfer switch.

4.9 Telemetry Data

Telemetry data is pushed to the cloud according to user-specified schedule (every 5 minutes / every hour, etc.) . Telemetry data is stored on the Cloud with no limits on data. However, if no cloud connection is available, all telemetry data is discarded until the cloud connection is restored.

4.10   Event Log

Event log records are also pushed immediately to the cloud and stored in event logs. Events are store in the Cloud Link unit cache if the connection to the cloud fails. Cached events are immediately pushed to the cloud when connection is reestablished.

4.11   Diagnostics

The PC500/550 Cloud Link provides diagnostic information on Modbus communication, memory utilization, cloud connection, wireless connection, and system information.

- Modbus - Provides communications status for each configured device, including Modbus channel; number of Modbus packets sent, received, and failed; and the date and time of the last successful communication.

- Performance - Provides memory utilization and overall system performance.

- Cloud - Provides the current connection status and connection time, total disconnects, and total failures to reconnect to the cloud.

- Internet - Provides the wireless signal strength, current connection status and connection time, total disconnects, and total failures to reconnect to the internet.

- System Information - Provides the device model, gateway ID, modem type, modem software version, modem IMEI, hardware version, OS version, software version, build number, and the date and time of the last update.

4.12   User Access Levels

1. The distributor and dealer have the following access permissions and roles.

    a. Account Owner

       - Account Owners are the owners of their account. They can add, edit, and delete sites and assets, and invite, edit, and delete other users on the account. They can also view and export data, and acknowledge and export events, as well as update the software for the Cloud Link gateway remotely via the PowerCommand Cloud web application. Account owners can also operate and disable remote operation of their assets.

       - Account Owners can also update gateway software, manage customer accounts, add, edit, or delete Customer accounts, sites, and assets, as well as view and export data, and acknowledge and export customer events

    b. Account Manager

       - Account Managers are in charge of managing customer accounts. They have the ability to invite, edit, and delete other users on their account. They can also update gateway software, view and export data, and acknowledge and export events, as well as update the software for the Cloud Link gateway remotely via the PowerCommand Cloud web application. Account managers can remotely operate their assets if remote operations are enabled.

    c. Service Technician

       - Service Technicians can update gateway software, manage customer accounts, add edit, delete, and operate customer assets if remote operation is enabled, view and export data from customer sites, and acknowledge and export customer events.

     d. Account User

- Account Users are primarily read-only users. They can view and export data, and export events.

2. Customers have the following access permissions and roles.

     a. Account Owner

- Account Owners are the owners of their account. They can add, edit, and delete sites and assets, and invite, edit, and delete other users on the account. They can also view and export data, and acknowledge and export events, as well as update the software for the Cloud Link gateway remotely via the PowerCommand Cloud web application. Account owners can also operate and disable remote operation of their assets.

     b. Account Manager

- Account Managers are in charge of managing their account(s). They have the ability to invite, edit, and delete other users on their account. They can also view and export data, and acknowledge and export events, as well as update the software for the Cloud Link gateway remotely via the PowerCommand Cloud web application. Account managers can remotely operate their assets if remote operations are enabled.

     c. Service Technician

- Service Technicians can update gateway software, add edit, delete, and operate assets if remote operation is enabled, view and export data, and acknowledge and export events.

     d. Account User

- Account Users are primarily read-only users. They can view and export data, and export events.

4.12.1 Access Permissions - Distributor Roles

TABLE 2.   ACCESS PERMISSIONS - DISTRIBUTOR ROLES

	Account Owner	Account Manager	Service Technician	Account User
Account Permissions (Primary Acct.)				
Manage Account	View, Edit	View only	View only	View only
Manage Site	View, Add, Edit, Delete	View, Add, Edit, Delete	View, Edit	View only
Manage Users	View, Invite, Edit, Delete	View, Invite, Edit	View only	View only
Manage Asset Commands	Enable, Disable Commands	-	-	-
Site Permissions (Primary Acct.)				
Manage Site	View, Add, Edit, Delete	View, Add, Edit, Delete	View, Edit	View only
Manage Gateway	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View only

	Account Owner	Account Manager	Service Technician	Account User
Manage Assets	View, Add, Edit, Delete, Operate, Export Data	View, Add, Edit, Delete, Operate, Export Data	View, Add, Edit, Delete, Operate, Export Data	View, Export Data
Manage Events	Acknowledge, View, Export	Acknowledge, View, Export	Acknowledge, View, Export	View, Export
Account Permissions (Dealer Acct.)				
Manage Account	View, Edit, Delete, Approve/Decline	View, Edit, Delete, Approve/Decline	-	-
Manage Site	-	-	-	-
Manage Users	-	-	-	-
Manage Asset Commands	-	-	-	-
Account Permissions (Customer Acct.)				
Manage Account	View, Invite, Edit, Delete	View, Invite, Edit, Delete	View, Invite, Edit, Delete	View only
Manage Site	View, Add, Edit, Delete	View, Add, Edit, Delete	View, Add, Edit, Delete	View only
Manage Users	-	-	-	-
Manage Asset Commands	-	-	-	-
Site Permissions (Customer Acct.)				
Manage Site	View, Add, Edit, Delete	View, Add, Edit, Delete	View, Edit	View only
Manage Gateway	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View only
Manage Assets	View, Add, Edit, Delete, Operate, Export Data	View, Add, Edit, Delete, Operate, Export Data	View, Add, Edit, Delete, Operate, Export Data	View, Export Data
Manage Events	Acknowledge, View, Export	Acknowledge, View, Export	Acknowledge, View, Export	View, Export

4.12.2 Access Permissions - Dealer Roles

TABLE 3.   ACCESS PERMISSIONS - DEALER ROLES

	Account Owner	Account Manager	Service Technician	Account User
Account Permissions (Dealer Primary Acct.)				
Manage Account	View, Edit	View only	View only	View only
Manage Site	View, Add, Edit, Delete	View, Add, Edit, Delete	View, Edit	View only
Manage Users	View, Invite, Edit, Delete	View, Invite, Edit	View only	View only
Manage Asset Commands	Enable, Disable Commands	-	-	-
Site Permissions (Dealer Primary Acct.)				
Manage Site	View, Add, Edit, Delete	View, Add, Edit, Delete	View, Edit	View only
Manage Gateway	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View only
Manage Assets	View, Add, Edit, Delete, Operate, Export Data	View, Add, Edit, Delete, Operate, Export Data	View, Add, Edit, Delete, Operate, Export Data	View, Export Data
Manage Events	Acknowledge, View, Export	Acknowledge, View, Export	Acknowledge, View, Export	View, Export
Account Permissions (Customer Acct.)				
Manage Account	View, Invite, Edit, Delete	View, Invite, Edit, Delete	View, Invite, Edit, Delete	View only
Manage Site	View, Add, Edit, Delete	View, Add, Edit, Delete	View, Add, Edit, Delete	View only
Manage Users	-	-	-	-
Manage Asset Commands	-	-	-	-
Site Permissions (Customer Acct.)				
Manage Site	View, Add, Edit, Delete	View, Add, Edit, Delete	View, Edit	View only
Manage Gateway	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View only

	Account Owner	Account Manager	Service Technician	Account User
Manage Assets	View, Add, Edit, Delete, Operate, Export Data	View, Add, Edit, Delete, Operate, Export Data	View, Add, Edit, Delete, Operate, Export Data	View, Export Data
Manage Events	Acknowledge, View, Export	Acknowledge, View, Export	Acknowledge, View, Export	View, Export

4.12.3 Access Permissions - Customer Roles

TABLE 4.   ACCESS PERMISSIONS - CUSTOMER ROLES

	Account Owner	Account Manager	Service Technician	Account User
Account Permissions (Customer Acct.)				
Manage Account	View, Edit	View, Edit	View only	View only
Manage Site	View, Edit	View, Edit	View, Edit	View only
Manage Users	View, Invite Edit, Delete	View, Invite, Edit	View only	View only
Manage Asset Commands	Enable, Disable Commands	View only	View only	View only
Site Permissions (Customer Acct.)				
Manage Site	View, Edit	View, Edit	View, Edit	View only
Manage Gateway	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View, Register, Un-register, Process Software Update, Password Reset, Gateway Reset	View only
Manage Assets	View, Add, Edit, Delete, Operate, Export Data	View, Add, Edit, Delete, Operate, Export Data	View, Add, Edit, Delete, Operate, Export Data	View, Export Data
Manage Events	Acknowledge, View, Export	Acknowledge, View, Export	Acknowledge, View, Export	View, Export

4.13   Transport Layer Security (TLS)

Transport Layer Security (TLS) and its predecessor, Secure Sockets Layer (SSL), both frequently referred to as "SSL", are cryptographic protocols that provide communications security over a computer network. Several versions of the protocols find widespread use in applications such as web browsing, email, Internet faxing, instant messaging, and voice-over-IP (VoIP). Websites are able to use TLS to secure all communications between their servers and web browsers.

NOTICE
TLS is always enabled so https:// must be used to access the device. Your browser may prompt you with a security warning, this is normal and you must click to proceed.

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5 System Requirements

5.1 Hardware Requirements

The following hardware is required.

- A PC or Macintosh computer with a USB port that will run the software listed below
- Minimum screen resolution of 1024 x 768.

5.2 Software Requirements

The following software is required.

- Browser: Internet Explorer 9 or later is recommended
- Operating System:
    ◦ Microsoft Windows 7 or later
    ◦ Mac OS X version 10.6 or later
    ◦ Linux
- Microsoft Silverlight software, version 5 or later
- Windows Mobile Device Center

5.3 Other Requirements

The following is other requirements:

- Internet Speed: At Least 1 Mbps
- One of the following two options:
    ◦ An Ethernet connection with access to ports 8883 and 443
    ◦ A 3G Sim card with an active data plan

5.4 Hardware Installation

The PC500/550 Cloud Link has a NEMA (IP 10) rated enclosure and is not designed to handle environmental conditions, such as moisture. A moist environment can cause failure over time.

Mount the PowerCommand 500/550 Cloud Link in a suitable location, such as:

- On a DIN rail (35 mm)
- In a telecommunications, information technology, or networking cabinet
- In an office on a desk or other flat surface

NOTICE
Do not mount the PC500/550 Cloud Link inside a generator set or ATS enclosure. Doing so voids certifications.

An antenna extension cable is required if, due to location, the PC500/550 Cloud Link does not detect a wireless connection.

FIGURE 7.   MOUNTING EXAMPLES

5.4.1   Supplied Hardware

The following hardware is available for order with the PC500/550 Cloud Link. See **Chapter 10 on page 81** for part numbers.

Hardware	Description
USB-OTG Cable	Allows direct connection to a PC to configure devices.
Ethernet Cable	Allows connection to the network. Supports IEEE 10BASE-T and 100BASE-TX standards.
Modlon II Gateway Kit (541-1149) and Modlon Connection Cable Kit (TBD)	Required for: PCC 2100, PCC 3100, PCC 3200, PCC 3201 generator set controls OTPC, BTPC, OHPC, and CHPC ATS controls CCM.
Antenna Extension (12 ft)	Required for cabinet installations and if wireless strength is weak. **NOTICE** **12 feet is the maximum acceptable length for the antenna extension cable. A longer cable will degrade the signal.**

5.4.2   Additional Hardware Needed

The following hardware may be required in addition to the supplied hardware:

Hardware	Description
Modbus Cable	Twisted shielded pair cable (24 AWG or larger) used to connect the PC500/550 Cloud Link to the monitored device (Belden 3106A or equivalent).
Power Supply	9 - 32 VDC, 12 VDC - 250mA, 24 VDC - 125mA, 5W minimum (UPS is recommended).
SIM Card	Required for 3G GSM wireless modem (needs to be activated by a local provider).

5.4.3   PC500/550 Cloud Link Connections and Installation

Connect and install the PC500/PC550 Cloud Link as follows:

1. LAN Connections: Connect the Ethernet cable from the PC500/550 Cloud Link to the installation site network (Ethernet hub/switch).

2. Antenna Installation (Wireless option only - GSM):

   • Open Installation

     a. Attach antenna to the SMA connector on the PC500/550 Cloud Link.

     b. Contact a cellular service provider and activate service (SIM card).

   • Metal Enclosure Installation

     a. Choose a location for the antenna, preferably near the top of the cabinet.

     b. Create a 7mm (9/32 in) hole and install the bulkhead end of the antenna extension cable.

NOTICE
If the cabinet is NEMA rated, make sure the perforation is properly sealed to prevent loss of the NEMA ratings.

     c. Connect the SMA straight plug end of the connector to the PC500/550 Cloud Link.

     d. Attach the antenna to the bulkhead connector side of the antenna extension cable located on the outside of the cabinet.

     e. Contact a cellular service provider and activate service on a SIM card.

3. Modlon Connections: Install a Modlon II Gateway (541-1149) for converting LonWorks to Modbus communications. When connecting to the Modlon Gateway, use the Modlon Connection cable.

   a. Connect the DB9 connector of the Modlon Connection Cable to the DB9 header on the Modlon.

   b. Connect the other end of the cable to the corresponding points on the PC500/550 Cloud Link terminal block TB2. Either channel is acceptable.

4. Modbus Connections:

   a. Connect a twisted pair of the Modbus cable to the RS-485 connector on the generator set control board or AUX101 control to the corresponding points on the PC500/550 Cloud Link terminal block TB2. Either channel is acceptable.

   b. If the installation is for a separate power supply, connect a ground reference wire.

   c. Connect the cable shield to either Chassis Ground on TB2 of the PC500/550 Cloud Link or the ground pin on the generator set, ATS, or AUX101 control (not both).

5. Sensor Connections: Make the appropriate connection(s) to TB1 of the PC500/550 Cloud Link using a standard 24 AWG or larger wire.

- Wire the appropriate sensor (fuel sensor, for example) to AIn + and AIn–.

- Wire desired devices to discrete inputs (DIn 1, DIn 2).

6. Wired Generator Set connections

- Connect TB1-7 to generator Run Status

- Connect TB1-8 to generator Common Alarm

- Connect TB1-9/10 to generator Start/Stop

- Connect TB1-12/13 to generator Fault Reset

7. Connect the PC500/550 Cloud Link to a 12/24 VDC generator set battery or an isolated DC power supply.

8. Check the Power LED to confirm power is available.

9. Check Status LED to confirm application software is operating correctly.

10. Mount the PC500/550 Cloud Link on a DIN rail or install in a suitable location.

5.4.4 Getting Started

Do the following to connect the PC500/550 CL to the network and computer, and to start using the PC500/550 CL

1. Turn on the computer.

2. Connect the USB-OTG cable from the PC500/550 Cloud Link to the computer. The computer automatically installs a software driver. If driver is not automatically installed, install "Windows Mobile Device Center" manually.

3. Open an Internet browser window and go to **Tools** > **Internet Options** > **Connections** > **LAN Settings**. Under **Proxy Server**, uncheck the box for **Use a Proxy server for your LAN**. Select **OK** twice.

4. In the Internet browser window, enter the following IP address: **https://169.254.0.1**. The browser displays the PC500/550 Cloud Link login screen.

NOTICE
Use https because SSL security is always enabled.

5.5 Modem Activation

Do the following to activate the GSM modem in the PC500/550 Cloud Link.

1. Contact wireless provider/partner/reseller to obtain an account and a SIM card.

   a. Provide billing information.

   b. Specify wireless service required (3G data only).

   c. Provide SIM card requirement specifications (3G/GPRS).

   d. Provide modem 15-character International Mobile Equipment Identity (IMEI) Number (located on product label and on User Interface **Diagnostics** > **System Information** page).

   e. User may need to provide the modem model number (MTSMC-H5).

2. The modem is ready for use once the SIM card is activated and installed the into the Cloud Link device, and the Wireless data in the Gateway Setup Cellular Preferences is set to Enable.

3. Verify the wireless signal strength in the gateway setup by navigating to the diagnostics page Internet tab, and clicking the **Get Wireless Data** button.

This page is intentionally blank.

6   Gateway Setup

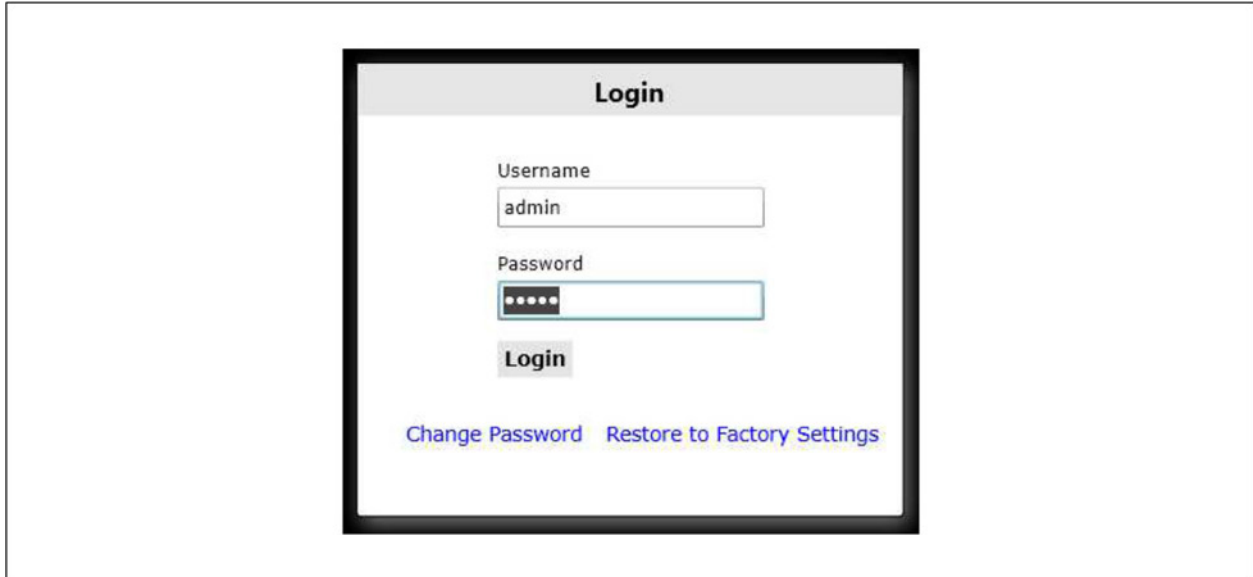## 6.1   Getting to Cloud Link Gateway Setup Menu

FIGURE 8.   LOGIN SCREEN

NOTICE
The first time logging into the system, enter admin for both the Username and Password.

1. Turn on the computer.

2. Connect the USB-OTG cable from the PowerCommand 500/550 Cloud Link to the computer. The computer automatically installs a software driver. If not, install M "Windows Mobile Device Center" manually.

3. Open an Internet browser window and go to **Tools** > **Internet Options** > **Connections** > **LAN Settings**. Under **Proxy Server**, uncheck the box for **Use a Proxy server for your LAN**.

4. Open Internet Explorer, and enter the following IP address: https://169.254.0.1 to load the Cloud Link Gateway Setup login screen.

NOTICE
SSL is always enabled so https:// must be used to access the device. Your browser may prompt you with a security warning, this is normal and you must click to proceed.

5. If the screen below is displayed, select **Continue to this website** to display the login screen.
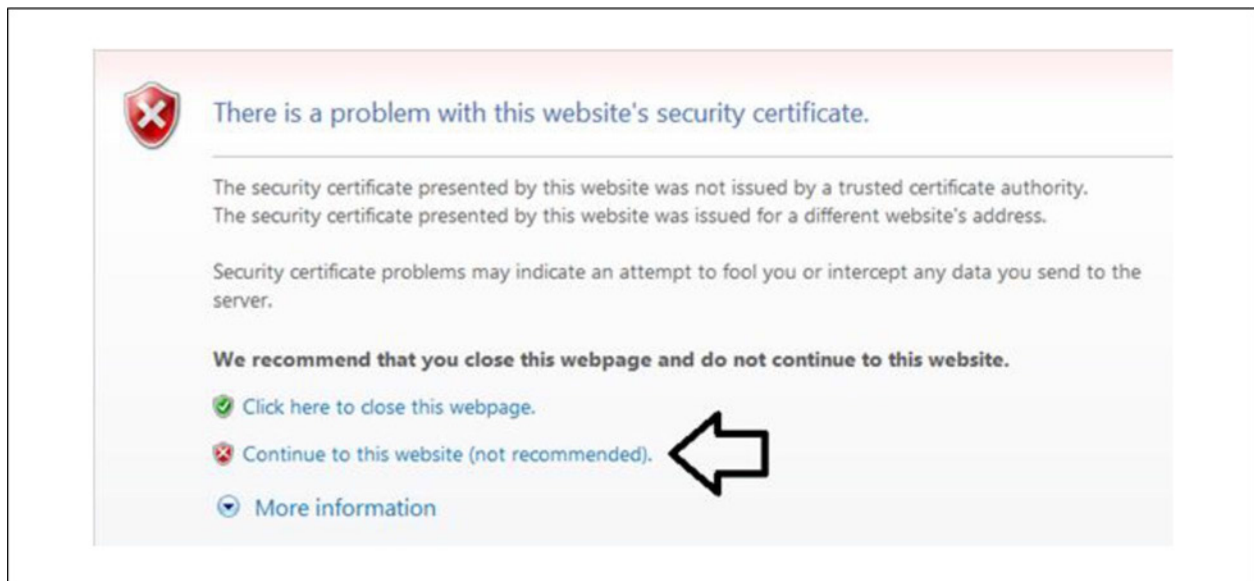
FIGURE 9. PROBLEM WITH WEBSITE SECURITY CERTIFICATE

6. Enter the user name (admin) and password (admin).

7. After logging into the system, the home page is displayed with a menu bar at the top. Select **Setup** to navigate to the **Setup** menu.
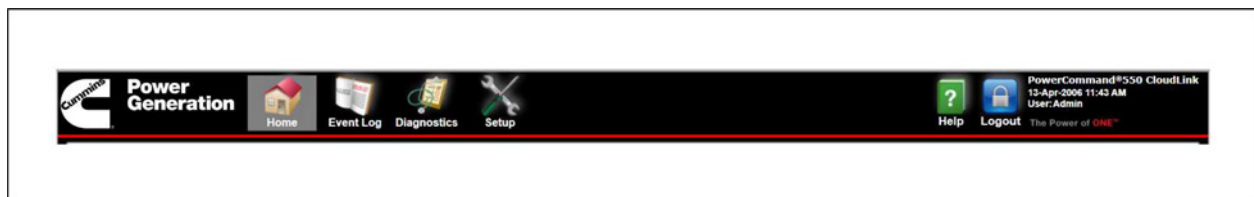

FIGURE 10. MENU BAR

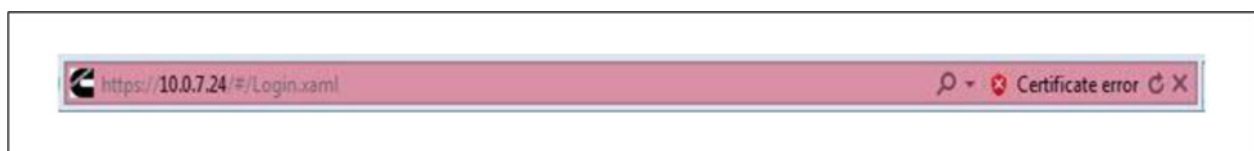| *NOTICE* |
|---|
| **The address bar appears as shown below. This is expected and does not indicate a security threat.** |

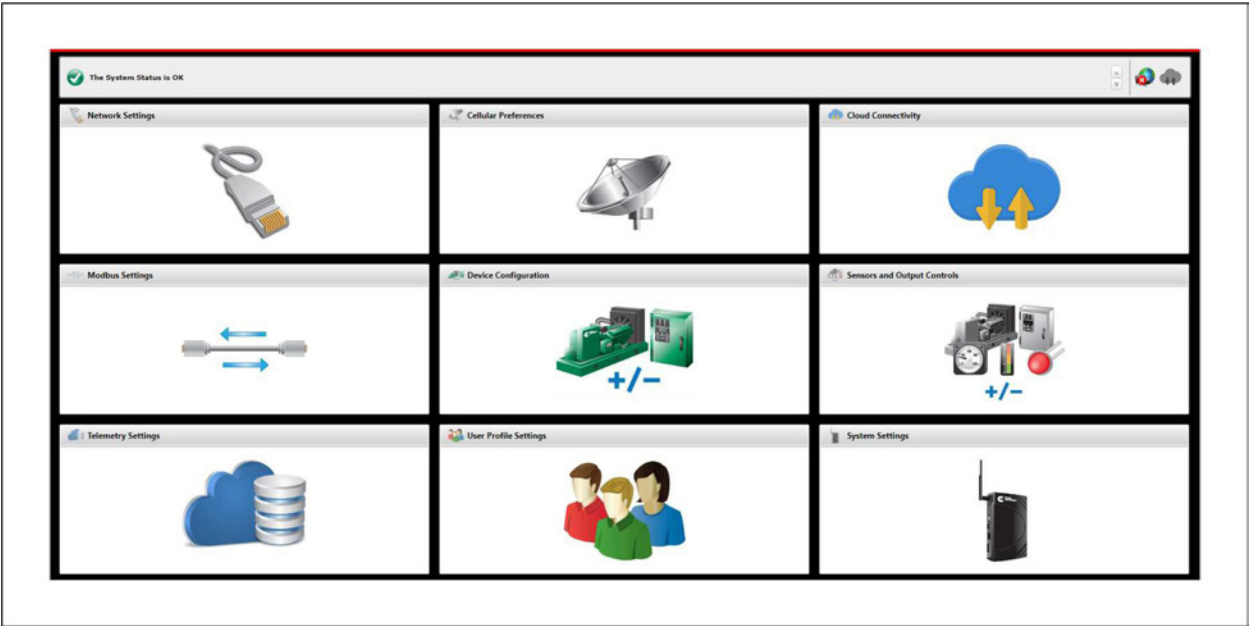
FIGURE 11. HTTPS EXAMPLE

6.2 Setup Menu

FIGURE 12. SETUP MENU

The setup menu contains 9 tiles used to configure the entire system. Selecting a setup tile opens the appropriate setup page. All other setup selections are shown on the left side menu.
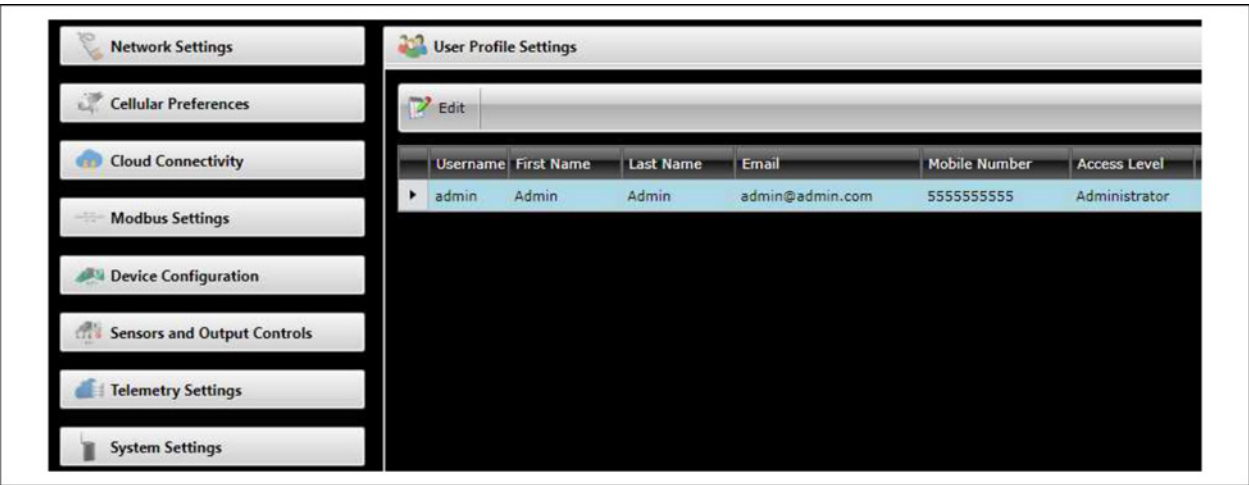

FIGURE 13. SETUP SIDE MENU

6.3 Network Settings (LAN Communication Only)

In network settings you can assign a name to the specific Cloud Link device. The DHCP and DNS settings can also be changed. The default setting are to obtain an IP address and DNS service address automatically. Settings can be manually entered. If DHCP settings are entered manually, DNS settings must also be entered manually.

To update network settings:

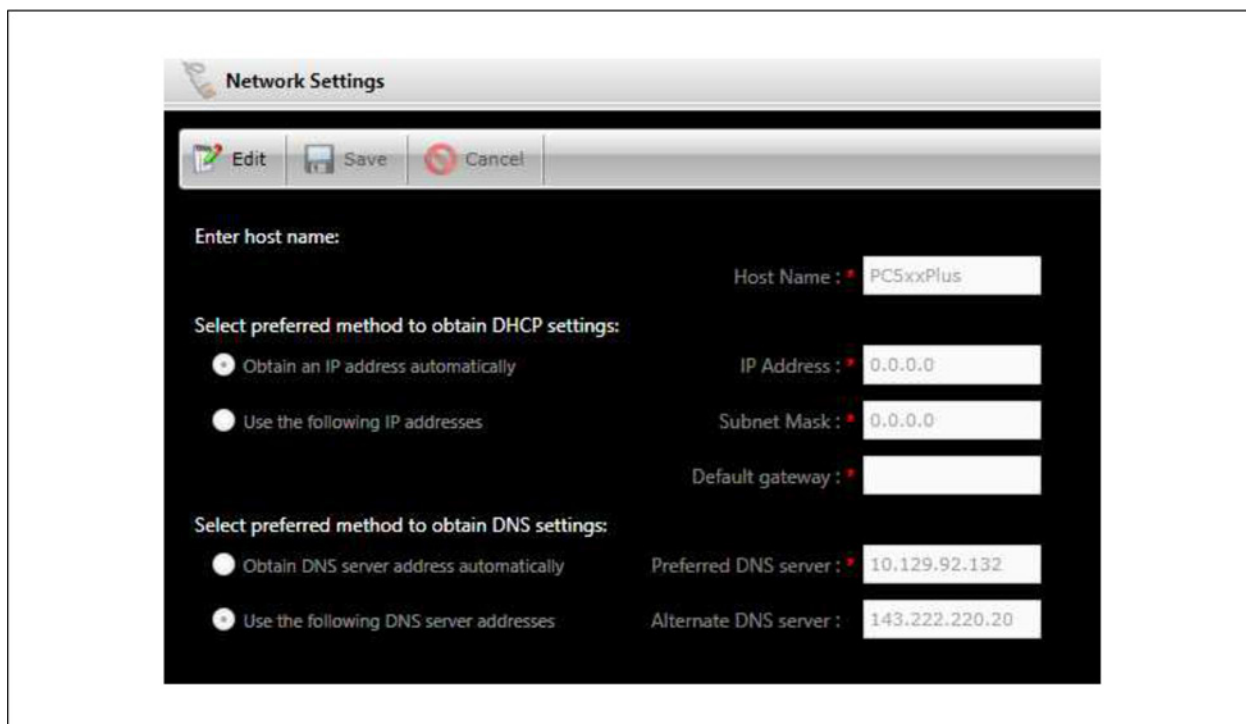1. Select **Network Settings** on the Setup menu.

FIGURE 14.   NETWORK SETTINGS

2. Select **Edit** from top menu bar to enable editing of the network settings fields.

3. Enter Host Name.

4. Select either **Obtain an IP address automatically** or **Use the following IP address** for DHCP settings.

5. If **Use the following IP address** was selected:

     a. Enter the DHCP IP Address, Subnet Mask, and Default gateway.

     b. Enter the DNS Preferred DNS server.

     c. Enter the DNS Alternate DNS server if desired.

     d. Select **Save**. The device can now be accessed using the IP address.

NOTICE
When manually entering IP address information, the network administrator needs to map the IP address to the host name to provide access to the device using a host name.

6. If **Obtain an IP address automatically** is selected, the new IP addresses are automatically populated when the device is physically plugged into the network via the Ethernet cable. The device can now be accessed using the host name or the IP address from inside the network using https:// "Host Name" or https://"IP Address".

6.4   Cellular Preferences (Cellular Communication Only)

The gateway can connect to the Internet on a cellular 3G network. To enable a 3G cellular network:

1. Insert a 3G data enabled SIM card into the gateway SIM card slot.

2. On the **Cellular Preferences** page, set **Wireless Data** to **Enable**.

3. On the **Cellular Preferences** page, enter the cellular provider's APN (Access Point Name). You can get this information from your cellular provider, otherwise this information can usually be found by doing a quick search online.

4. Click **Save**.

5. Make sure you receive a popup window confirming your cellular preferences have been saved.

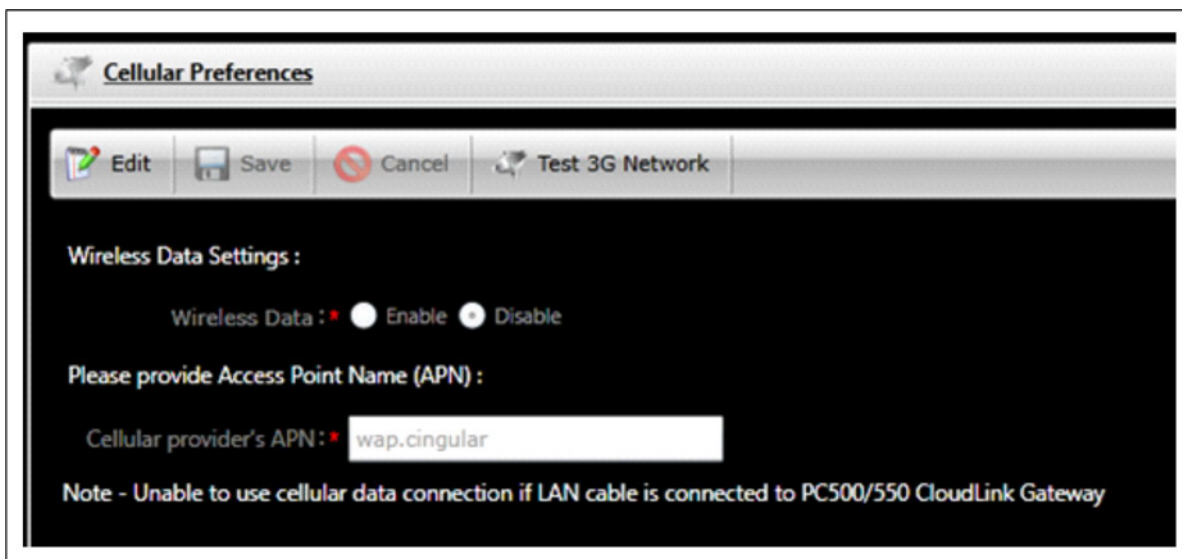6. Click the **Test 3G Network** button. A message window appears that gives the test result.

FIGURE 15. CELLULAR PREFERENCES

6.5 Cloud Connectivity

Gateway devices must be registered in PowerCommand Cloud before telemetry transactions can take place. Refer to **Section 7.3** for registration instructions.

1. Create a Gateway Name to identify this specific Cloud Link unit later on the PowerCommand Cloud. **Figure 16**.

FIGURE 16. CLOUD CONNECTIVITY

2. Enter the Gateway Access Key that you receive from the PowerCommand Cloud web application when you create a Site. For more information refer to **Section 7.4 on page 51**.

3. The Cloud Address is pre-populated and should not need adjustment.

4. Select the **Save** button. A **Successful** window shows.

5. Select **OK** in the **Successful** window. The **Cloud Connection Status** window shows.

6. The Gateway will connect to the PowerCommand Cloud. The Gateway will attempt to connect to the PowerCommand Cloud. A **Successful** or **Unsuccessful** status window will be displayed. If unsuccessful, first check for an internet connection and verify the **Gateway Access Key** is correct. See **Section 9.2.6** for further Cloud Connectivity troubleshooting.

FIGURE 17.   CLOUD CONNECTION STATUS

7. Select **Test Connection** to test the connection of the Gateway to the PowerCommand Cloud.

6.6   Modbus Settings

Modbus Settings allows the user to configure Modbus RTU settings. The following table shows the supported Modbus settings.

TABLE 5.   SUPPORTED MODBUS SETTINGS

Setting	Setting Values
Baud Rate	2400 4800 9600 19200 38400
Stop Bit	1 2

Setting	Setting Values
Parity	None Even Odd

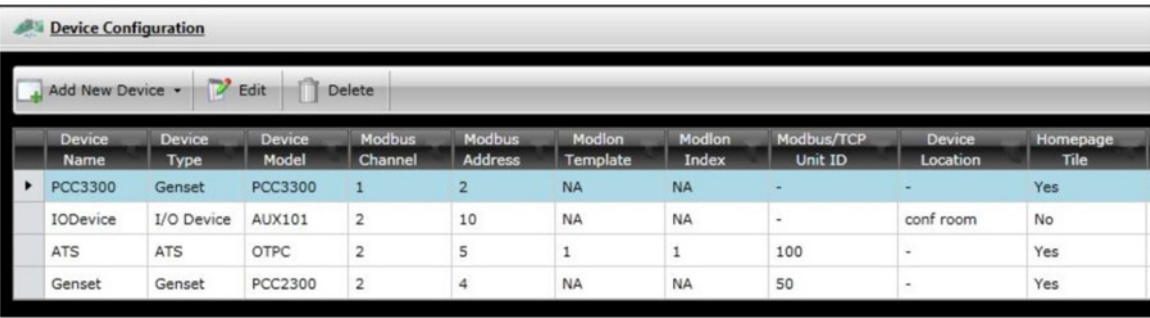1. Select **Modbus Settings** on the Setup menu.

FIGURE 18.   MODBUS SETTINGS

2. Verify the displayed settings. (The settings should match the Modbus settings of the devices that will be monitored.)

3. If the Modbus settings need to be changed, select **Edit** and modify the settings.

4. Select **Save**.

6.7   Device Configuration

Device Configuration is used to add, delete, and configure generator set, ATS, and I/O devices into the system. Only 3 AUX101/102 I/O devices can be configured. I/O devices provide expansion for sensors and output controls.

1. Select **Device Configuration** on the Setup menu.
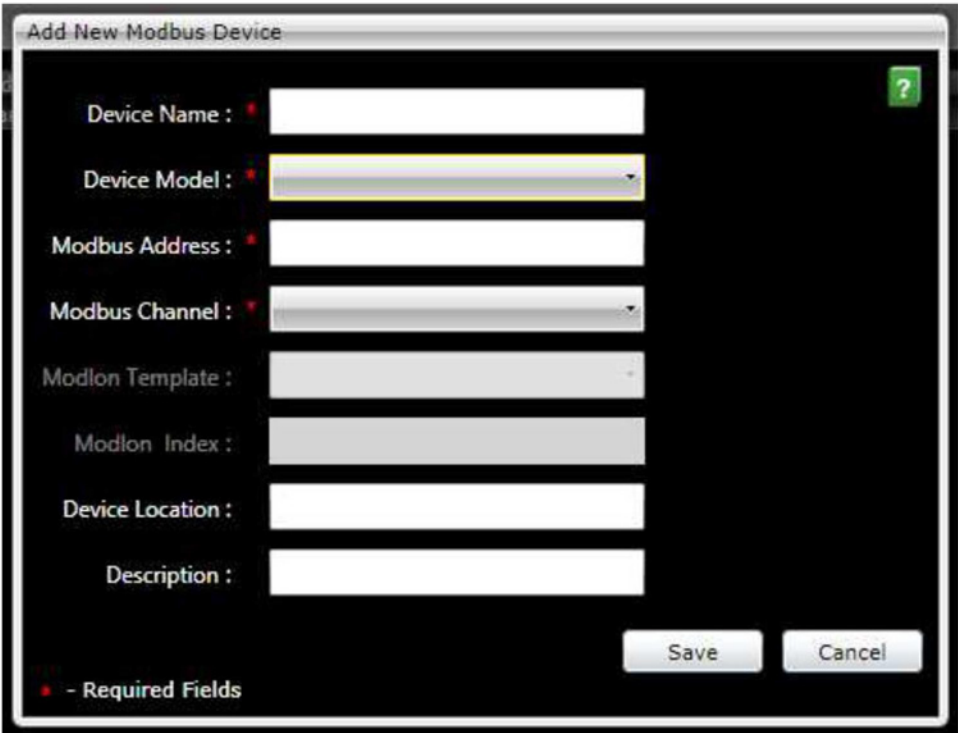
FIGURE 19.   DEVICE CONFIGURATION

2. Select **Add New Device** and select the device type from the drop-down list.

- Genset
- ATS
- I/O Device

To edit an existing device, select the device from the list and select **Edit**.

To delete an existing device, select the device from the list and select **Delete**.

6.7.1   Add New Device - Genset

FIGURE 20.   ADD NEW DEVICE - GENSET

To add a new generator set:

1. Enter the desired device name.

2. Select the device control from the Device Model drop-down list:
   - PCC 3300
   - PCC 2300
   - PCC 1301
   - PCC 1302
   - PCC 2100
   - PCC 3100
   - PCC 3200
   - PCC 3201
   - PS0500
   - CCM-G
   - Wired Generator Set

3. Enter the Modbus Address of the device.

4. Select the Modbus Channel from the drop-down list:
   - Channel-1
   - Channel-2

5. If the control is PCC 2100, PCC 3100, PCC 3200, PCC 3201, or CCM-G; a Modlon template and index entry is required. Select the appropriate template (1, 2, 3) and enter the appropriate index number.

6. When Wired Generator is selected, the configuration window is displayed but the fields are not editable. Start/Stop will be discrete output A. Fault Reset is output B. Run Status is discrete input A. Common Alarm is discrete input B. See **Figure 57** and **Figure 58** for a wiring diagram for Wired Generator.

7. Enter a device location and description if desired.

8. Select **Save**.

LonWorks supported devices require conversion to Modbus before connecting to the PC500/550 Cloud Link. Since Modbus requests are diverted to multiple devices via the same Modlon, the system allows duplicate IDs for Modlon supported devices. The devices are differentiated by template and index number. Generator controls PCC 2100, PCC 3100, PCC 3200, PCC 3201, and CCM-G are Modlon supported devices. The following table shows the supported generator set templates and indexes.

TABLE 6.   SUPPORTED GENERATOR SET MODLON TEMPLATES

Template	Supported Generator Sets	Index
1	5 Generator Sets	0–4
2	5 Generator Sets (with paralleling data)	0–4
3	10 Generator Sets	0–9

NOTICE
A Modlon Index is related to the generator set that was commissioned on the LonWorks database. For example, if Gen1 is commissioned on the LonWorks database, an index of 0 is associated with it. Gen2 is associated with index 1, and so on.

When devices are added to the system, a Modbus/TCP Unit Identifier can be assigned. The unit identifier is used for identifying devices connected on the Modbus RTU channel when establishing a Modbus TCP session. The PC500/550 Cloud Link metadata is accessed using device ID 100.

6.7.2 Add New Device - ATS

ATSs are LonWorks supported devices that require conversion to Modbus before connecting to the PC500/550 Cloud Link. Since Modbus requests are diverted to multiple devices via the same Modlon, the system allows duplicate IDs for Modlon supported devices. The devices are differentiated by template and index number. The following table shows the supported ATS templates and indexes.

TABLE 7.   SUPPORTED GENERATOR SET MODLON TEMPLATES

Template	Supported ATSs	Index
1	5 ATSs	0–4
2	5 ATSs	0–4
4	10 ATSs	0–9

NOTICE
A Modlon Index is related to an ATS that was commissioned on the LonWorks database. For example, if ATS1 is commissioned on the LonWorks database, an index of 0 is associated with it. ATS2 is associated with index 1, and so on.

FIGURE 21.   ADD NEW DEVICE - ATS

1. Enter the desired device name.

2. Select the Device Model from the drop-down list:

    • OTPC

- • OHPPC
- • CHPC
- • BTPC
- • PLT
- • CCM-T

3. Enter the Modbus Address of the device.

4. Select the Modbus Channel from the drop-down list:

- • Channel-1
- • Channel-2

5. Select the appropriate Modlon template (1, 2, 4) and enter the appropriate index number.

6. Enter the Source 1 and Source 2 name if desired.

7. Enter a device location and description if desired.

8. Select **Save**. The new device tile is added to the device grid and Home page.

6.7.3   Add New Device - I/O Device

FIGURE 22.   ADD NEW DEVICE - I/O DEVICE

To add a new AUX101/102:

1. Enter the desired device name.

2. Enter the Modbus Address of the device.

3. Select the Modbus Channel from the drop-down list.

   • Channel-1

   • Channel-2

4. Enter a device location and description if desired.

5. Select **Next**.

FIGURE 23.   ADD NEW DEVICE - I/O DEVICE CONFIGURATION

6. Select the **Select default configuration for Aux101's Inputs and Current Sources** check box or manually configure Input 1 through Input 8. To manually configure an input, select the input type from the drop-down list.

    • Analog - Continuous voltage converted to a value.

    • Discrete (Active High) - Represents a binary digit of 1, or asserted state of a logical condition, by the higher of 2 voltages. Sensor becomes active when the signal is tied to B+.

    • Discrete (Active Low) - Represents a binary digit of 1, or asserted state of a logical condition, by the lower of 2 voltages. Sensor becomes active when the signal is grounded (B–).

7. For Analog inputs, configure the associated Current Source. Use the up and down arrows, or manually enter.

8. If the AUX101 includes an AUX102, select the **Aux102 Available** check box. AUX102 inputs are not configurable.

9. Select **Finish**.

To quit without saving changes, select **Cancel**.

To go back to the previous screen, select **Back**.

Add sensors and output control for the new I/O device using the Sensors and Output Control setup menu.

6.8   Sensors

Sensors configuration wizards are used to enter and edit sensor information.

NOTICE
An AUX101/102 I/O device needs to be added before setting up AUX101/102 sensors.

1. Select **Sensors and Output Controls** on the Setup menu.

NOTICE
The PC500/550 Cloud Link does not support Output Controls.

2. Select the **Sensors** tab if it is not already selected.
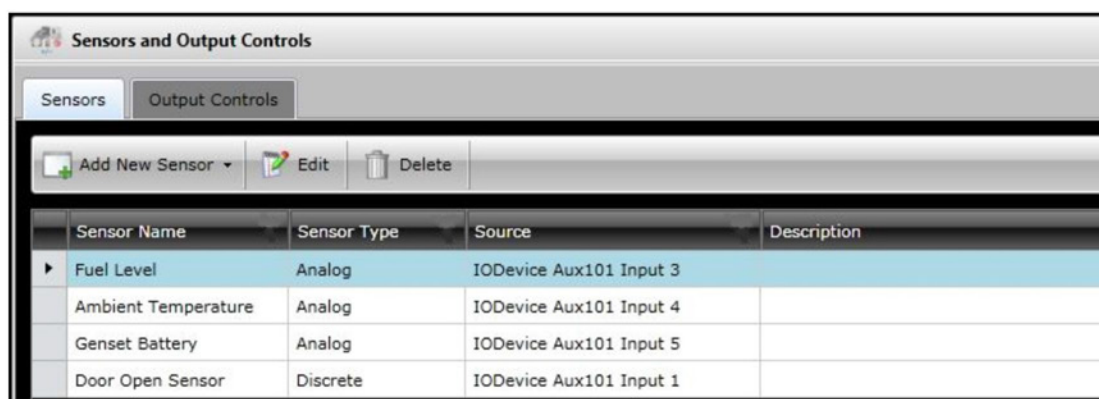
FIGURE 24.   SENSORS AND OUTPUTS - SENSORS

3. To add a new sensor, select **Add New Sensor** and select the sensor type from the drop-down list.

   - Discrete
   - Analog

To edit an existing sensor, select the sensor from the list and select **Edit**.

To delete an existing sensor, select the sensor from the list and select **Delete**.

6.8.1   Add New Sensor - Discrete
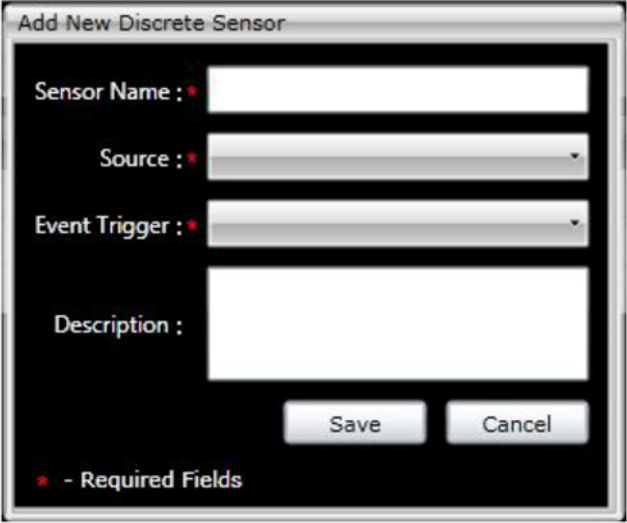
FIGURE 25.   ADD NEW SENSOR - DISCRETE

1. Enter a Sensor Name.

2. Select the I/O Source from the drop-down list.

   - IODevice Aux101 Input 1
   - IODevice Aux101 Input 2
   - IODevice Aux101 Input 7
   - IODevice Aux101 Input 8
   - IODevice Aux102 Input 9
   - IODevice Aux102 Input 10
   - IODevice Aux102 Input 11
   - IODevice Aux102 Input 12
   - PC550 Cloud Link Discrete Input Pin A
   - PC550 Cloud Link Discrete Input Pin B

NOTICE
The drop-down list is populated only with the available inputs. If an AUX is not configured, only the PC500/550 Cloud Link inputs are listed. If an input is already in use, it is not shown in the list.

3. Select the Event Trigger from the drop-down list.

- None (No event will be logged.)

- Active (An event will be logged when the sensor state changes to active.)

- Inactive (An event will be logged when the sensor state changes to inactive.)

- State Change (An event will be logged when the sensor state changes to active or inactive.)

4. Enter a Description if desired.

5. Select **Save**. The newly added sensor is displayed in the sensor grid.

6.8.2   Add New Sensor - Analog

FIGURE 26.   ADD NEW SENSOR - ANALOG

1. Enter a Sensor Name.

2. Select a sensor Type from the drop-down list:

- Temperature

- Pressure

- Volume

- Battery

3. Select the Units from the drop-down list. The units are based on the sensor type. The units should match the units from sensor specification sheet.

Sensor Type	Units
Temperature	degF degC
Pressure	psi kpa
Volume	Gal Ltr
Battery	Volt

4. Select the I/O Source from the drop-down list.

- IODevice Aux101 Input 3

- IODevice Aux101 Input 4

- IODevice Aux101 Input 5

- IODevice Aux101 Input 6

- PC550 Cloud Link Analog Input Pin

NOTICE
The drop-down list is populated only with the available inputs. If an AUX is not configured, only the PC500/550 Cloud Link inputs are listed. If an input is already in use, it is not shown in the list.

5. Enter a Description if desired.

6. Select **Next**.

FIGURE 27.   ADD NEW SENSOR - ANALOG CONVERSION TABLE

7. Update the Max and Min voltage if desired (use up and down arrows, or manually enter).

8. Enter the Max and Min units (use up and down arrows, or manually enter).

9. Enter the High Warning and Low Warning values as needed (use up and down arrows, or manually enter).

10. You can enable a 3% Hysteresis for warning messages to cut down on nuisance warning events. Enabling hysteresis will keep a warning active until the reading drops 3% back towards normal. For example, if you have a warning range of 0-100, the high warning will trigger over 100, and with hysteresis enabled, the high warning will stay active until the reading drops below 97. With hysteresis disabled, the warning will deactivate as soon as the reading drops below 100.

11. Select **Save** to save the changes. The newly added sensor is displayed in the sensor grid.

To quit without saving changes, select **Cancel**.

To go back to the previous screen, select **Back**.

6.9   Telemetry Settings

Telemetry Settings allows the user to set the time intervals for sending telemetry data to the PowerCommand Cloud.While storage of information on the Cloud is unlimited, data charges may apply. Make sure that the cellular data plan is adequate. Cummins is not responsible for overage charges.

1. Individual telemetry intervals for a running generator set, a stopped generator set, an ATS source 1 connected, and ATS source 2 connected, and senors.

2. Select a time interval between 5 and 60 minutes, 1 to 24 hours, or 1 to 30 days for each line. Any events are immediately sent to the cloud
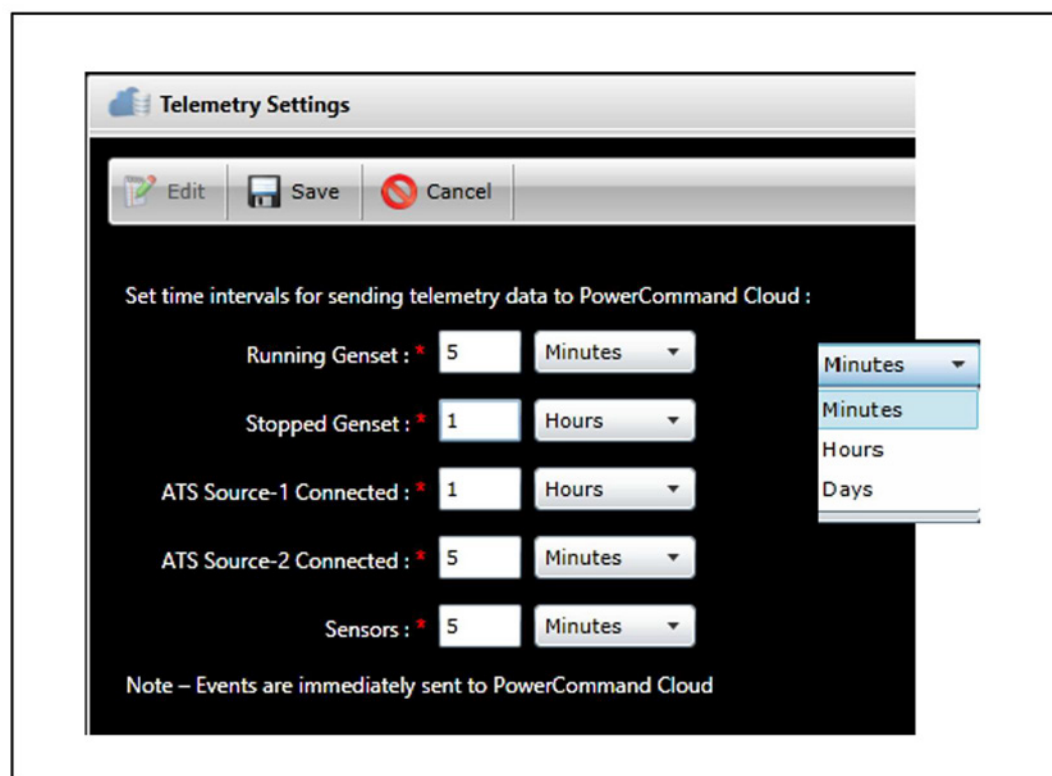
FIGURE 28.   TELEMETRY SETTINGS

6.10 User Profile Settings

User Profile Settings allows you to edit the name, email, and mobile number associated with the admin account for your gateway. However, you cannot add users, or change the username (admin) used to log into the PowerCommand 500/550 Cloud Link. All users are managed on the PowerCommand Cloud Web Application. The name, email, and mobile number are for your information only, and are not tied to your PowerCommand Cloud User Account in any way. You can change the password of the admin account from the Gateway Setup login screen by clicking on Change Password. You must user admin as the username.

6.10.1 User Profile Settings - Users

Select **User Profile Settings** on the Setup menu and select the **Users** tab if it is not already selected.
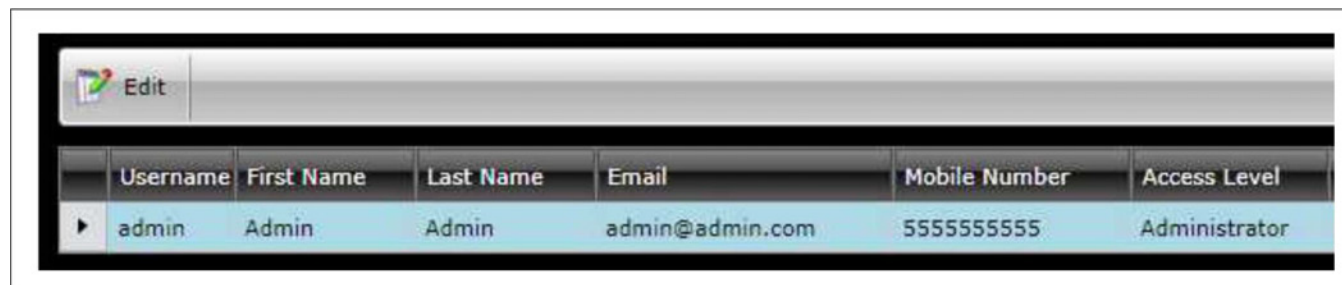
FIGURE 29.   USER PROFILE SETTINGS - USERS

To edit an admin user's information, select the user from the list and select **Edit**.

The administrator cannot change his or her password from this screen. If Change Password is selected for the active admin user, the following message is shown. Follow the instructions in the message.

FIGURE 30.   CHANGE PASSWORD (ADMIN)

FIGURE 31.   CHANGE PASSWORD FROM LOGIN

6.11   System Settings

System Settings allows the user to set the inactive session timeout. System Settings also provices the capability for the user to update software, and export and import system configuration settings.

Select **System Settings** on the Setup menu.
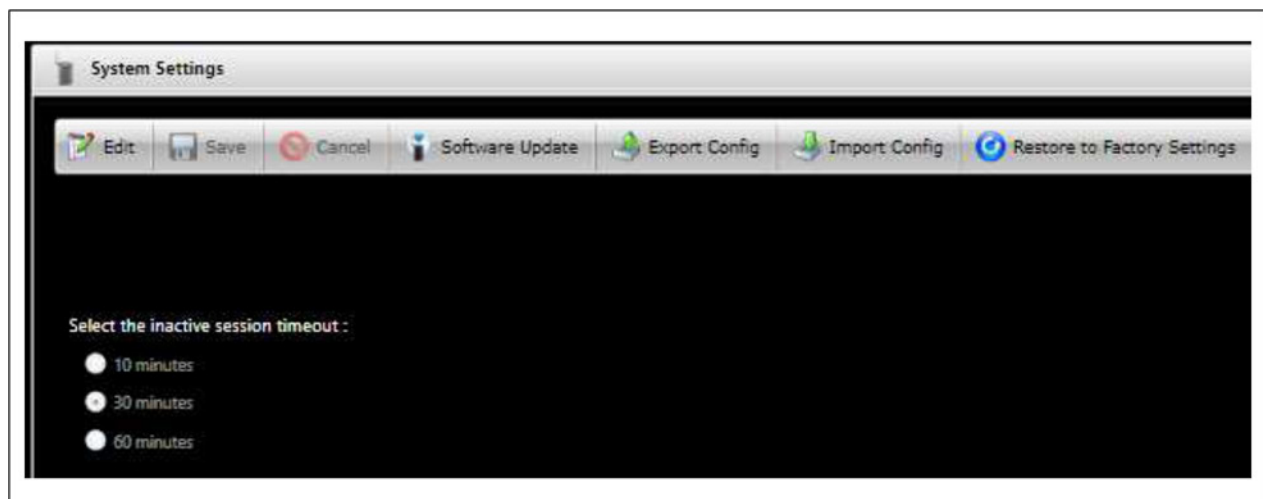
FIGURE 32.   SYSTEM SETTINGS

To edit the inactive session timeout:

1. Select **Edit**.

2. Select the inactive session timeout.

3. Select **Save**.

To cancel edits, select **Cancel**.

To update the software:

NOTICE

Update of software through the PowerCommand Web App is recommended.

1. Select **Software Update**.
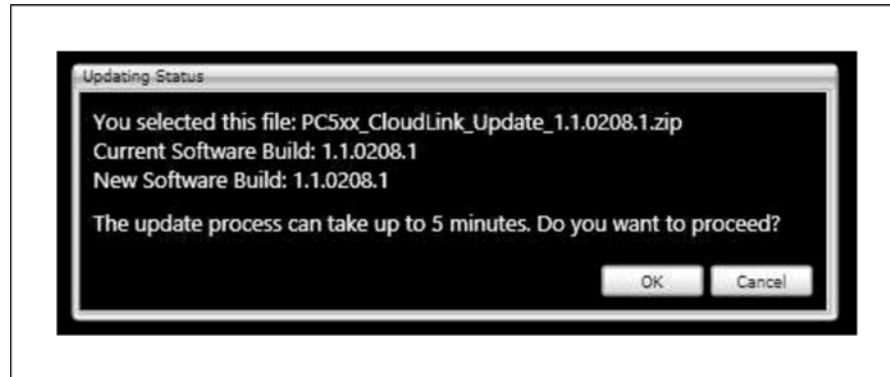
FIGURE 33.   UPDATING STATUS

2. If you want to proceed, select **OK**. A browser window is displayed to select the software update firmware zip file.

⚠ **CAUTION**

Uploading a bad or inadequate zip file can cause permanent damage to the PC500/550 Cloud Link. Make sure to upload the correct zip file.

To save the current configuration as a backup, select **Export Config**. A browser window is displayed to select the location to save the configured zip file.

To import a saved configuration file:

1. Select **Import Config**.
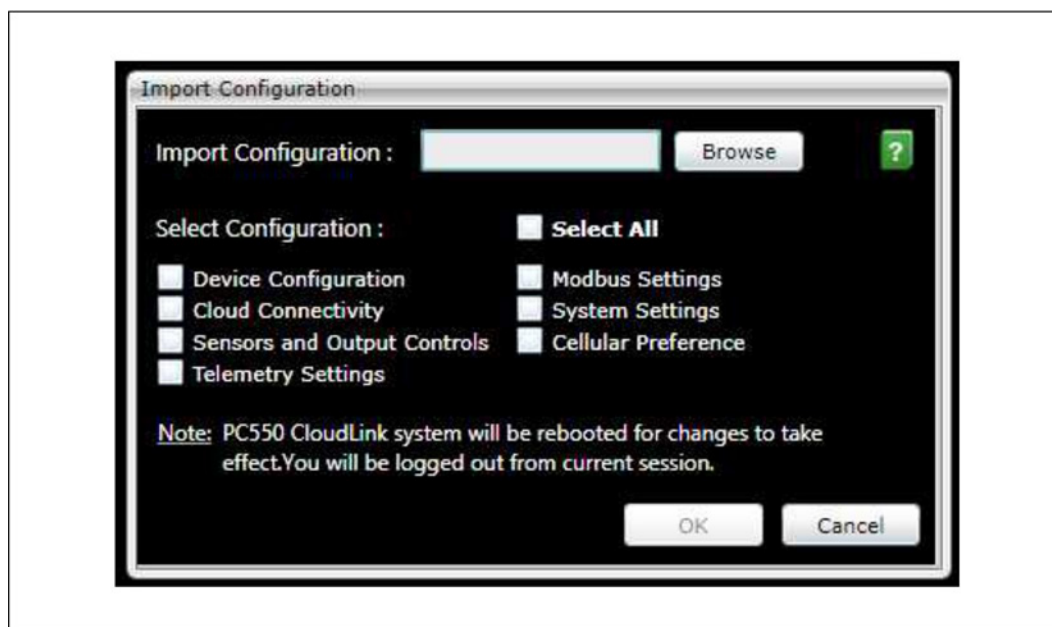
FIGURE 34.   IMPORT CONFIGURATION

2. Select **Browse**. A browser window is displayed to select the configuration XML file.

3. Select the configuration to import.

4. Select **OK**.

This page is intentionally blank.

7 PowerCommand Cloud Web Application Setup

7.1 Create Customer Account on PowerCommand Cloud

NOTICE
Only a Dealer or Distributor is able to create a new Customer Account.

1. Login to the PowerCommand Cloud at https://portal.powercommandcloud.com.

2. From the website dashboard, navigate to **Account Management**, then **Customer Accounts**.

3. Click on **ADD NEW**. The **Add New Account** window is shown.

FIGURE 35.   ADD NEW ACCOUNT WINDOW

   a. Add the account details including the account name and address.

   b. Add the contact details including the contact name, email address, and phone number. Ensure the email address is correct because an invitation email is automatically sent to the email address that is entered.

7.2 Accept Invitation and Create Customer Account

1. The Customer account owner will receive an email with a link to accept the invitation to the web application and to create a user account on the PowerCommand Cloud.

NOTICE
If you have not received an invitation email, please check your junk/spam folder first, then contact the distributor or dealer where you purchased your Cloud Link unit and they can check the email address and resend another invitation.

2. Click on the link in the email invitation. The PowerCommand Cloud launches in the web browser.

   • If you have already created an account for yourself on the PowerCommand Cloud, click **USE YOUR CURRENT USER ACCOUNT.** This will allow you to add permissions to an existing account.

- If you are registering for the PowerCommand Cloud for the first time, click **REGISTER NEW USER ACOUNT.**

3. A new page will open with Terms of Service. You must accept the terms of service to register a new account. Check the box next to "I have read and accept the terms of service" and click **ACCEPT.**

4. A new page will open to create your PowerCommand user account. Enter your email address and click the **SEND VERIFICATION CODE** button once. This sends a verification code to your email address.

NOTICE
Make sure to click the SEND VERFICATION CODE button only once. A new verification code is sent each time the button is clicked. The registration process accepts only the most recent code.

5. From your email client, open the email from PowerCommand Cloud.

6. Enter the code shown from the email into the **Verification Code** field in the web browser.

7. Choose and enter a password. The password must be 8-16 characters and must contain 3 of 4 of the following:

- Lowercase Characters

- Uppercase characters

- Digits (0-9)

- One or more of the following symbols: @#$%^&*-_+=[]{}|\:',?/`~"()

8. Click **CREATE** and you should not have access to the PowerCommand Cloud site at https://portal.powercommandcloud.com.

7.3   Create PowerCommand Cloud Site

A site must be created on the PowerCommand Cloud in order to add your assets.

1. To add a **Site** to one of your **Customer's Accounts**, from the PowerCommand Cloud dashboard click on **Account Management**, then **Customer Accounts,** then select the customer and click **Manage**. Then click on **Sites**.

2. To add a **Site** to your own account, from the PowerCommand Cloud dashboard, click on **Account Management**, then **My Account**, then **Sites.**

3. Click on **ADD NEW**.

FIGURE 36.   CREATE SITE

4. Enter the Name, Address, and contact information for the site, then click **SAVE**.

5. The site is created.

6. The next step is to link your Cloud Link unit with the site.

7.4   Assign the Cloud Link Unit to a Site

1. Navigate to the **Sites** view for your own or your customer's account**.**

2. Click on the dropdown arrow for the Site you wish to assign a PC500/550 Cloud Link.

3. The unique **Gateway Access Key** for the site is displayed. Click the **COPY KEY** button to copy to access key and paste that access key into the Cloud Connectivity setup screen in the gateway setup (See Section 6.5 on page29 for more information on the Cloud Connectivity Setup Screen).
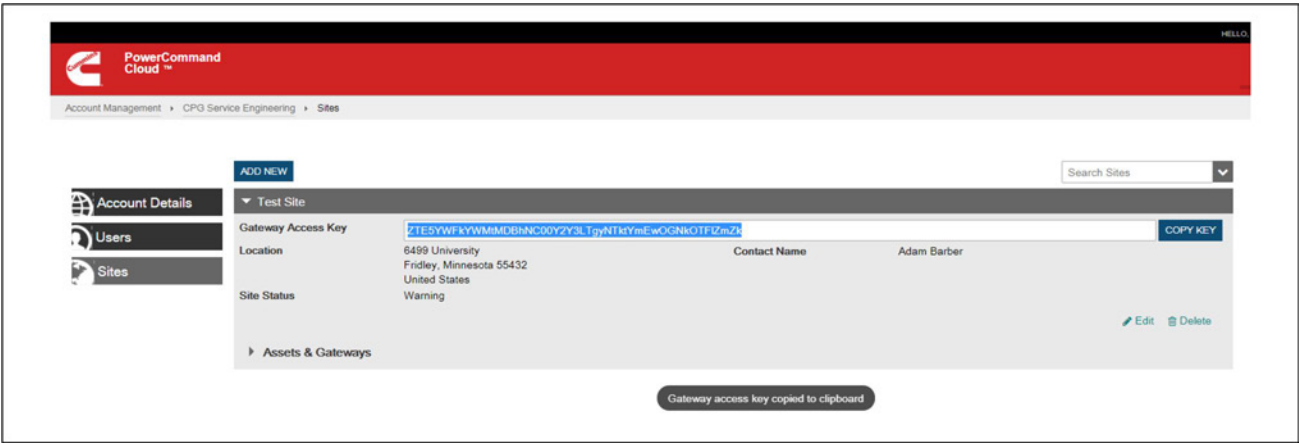
FIGURE 37.   GATEWAY ACCESS KEY

NOTICE
You cannot right click in the gateway setup so you must use Ctrl+V to paste the copied access key.

4. Click **SAVE** on the Cloud Connectivity setup screen and a provisioning process will start. If provisioning is successful, the cloud icon on the top right of the gateway setup screen will change from grey to blue.

NOTICE
If you continue to experience issues getting the cloud to turn blue, first verify that you have an internet connection, then refer to the troubleshooting in Chapter 9 on page 65.

7.5   Add Assets to Site

1. In order to view assets on the PowerCommand Cloud, they must added to the site.

2. To add **Assets** to one of your **Customer's Accounts**, from the PowerCommand Cloud Dashboard click on **Account Management**, then **Customer Accounts**, then select the customer and click **Manage**. Then click on **Sites.**

3. To add **Assets** to your own account, from the PowerCommand Cloud dashboard, click on **Account Management**, then **My Account**, then **Sites.**

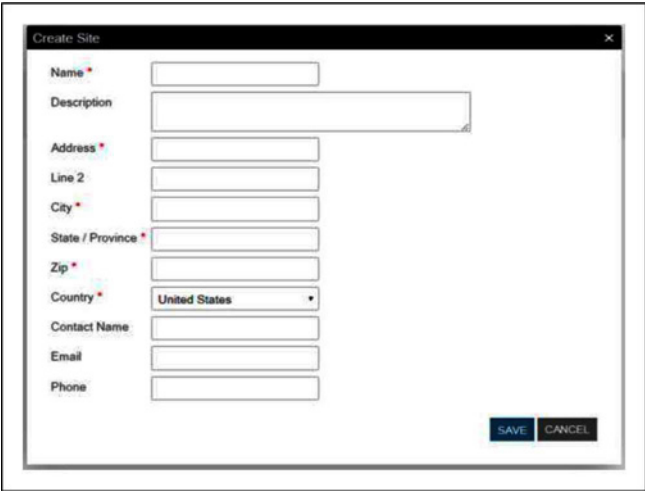4. Click on the dropdown for **Assets & Gateways**, then click the box for **ADD NEW ASSET.**
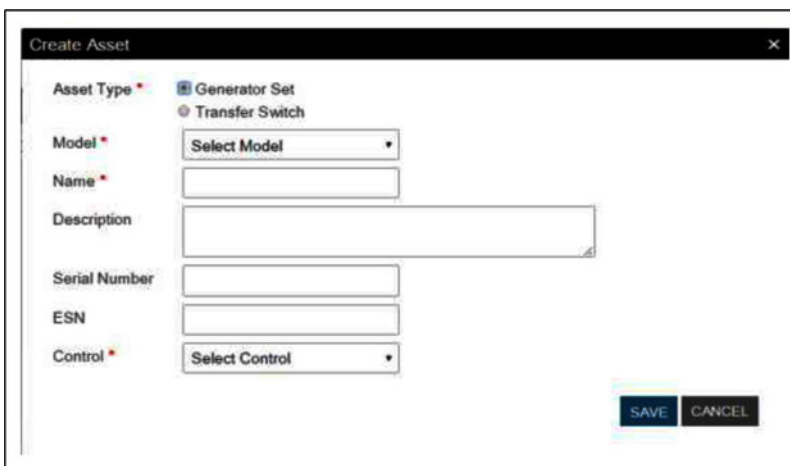
FIGURE 38.   CREATE ASSET

5. Add information for each asset separately. The assets must be added in the Device Configuration Setup in the gateway setup before they can be added on the web application. See **Section 6.7 on page 33** for more information on the Device Configuration Setup.

NOTICE
In addition to adding the devices in the gateway setup, you also need to have a valid Cloud connection with your PC500/550 Cloud Link.

6. Click **SAVE**. The site and assets can now be viewed on the PowerCommand Cloud.

8 Operation

8.1 PowerCommand Cloud Web Application

After your Cloud Link device is set up, most of the operation of your Cloud Link will take place on the PowerCommand Cloud website. The URL for this website is https://portal.powercommandcloud.com. You can access the PowerCommand Cloud using Internet Explorer 9 or newer, as well as Safari, Chrome, Firefox, and Edge.

8.1.1 Account Creation

If you are a Dealer or Distributor, you can register for an account on the PowerCommand Cloud landing page by clicking on REGISTER and filling in the required information. If your dealer or distributor already has an account, your user request will be directed to the Account Owner of that dealer or distributor for approval.

If you are a customer, your dealer or distributor will have to setup your account, and after they do, you will receive an invitation email from noreply@powercommandcloud.com. You will setup your user account by following the link in that email. See **Section 7.2 on page 49** for more information. If you have not received an invitation email, please check your junk/spam folder first, then contact the distributor or dealer where you purchased your Cloud Link unit and they can check the email address and resend the invitation.

8.1.2 Sign In

In your web browser, navigate to https://portal.PowerCommandClound.com.

1. Registered customers and end-users, click on SIGN IN and enter the Email address and password associated with your user account. If you have forgotten your password and are unable to sign in, click on the Forgot your password? link to reset your password.

2. Registered Cummins employees and Dealers, click on the "Cummins Employees and Dealers Click Here" link to sign in. This will direct you to the Cummins Online Login page where you will use your standard Cummins login information. If you have forgotten your password and are unable to sign in, please contact your normal IT support.

8.1.3 Dashboard

The home screen or dashboard displays all of your customer sites on an interactive map. On the toolbar across the top of the screen you can get back to the dashboard, access Account Management, and access My Profile or log out by clicking on your name on the top right of the screen.

- Accounts are shown on the left.
- Status of all sites (Fault, Warning) are shown accross the top and on a map.
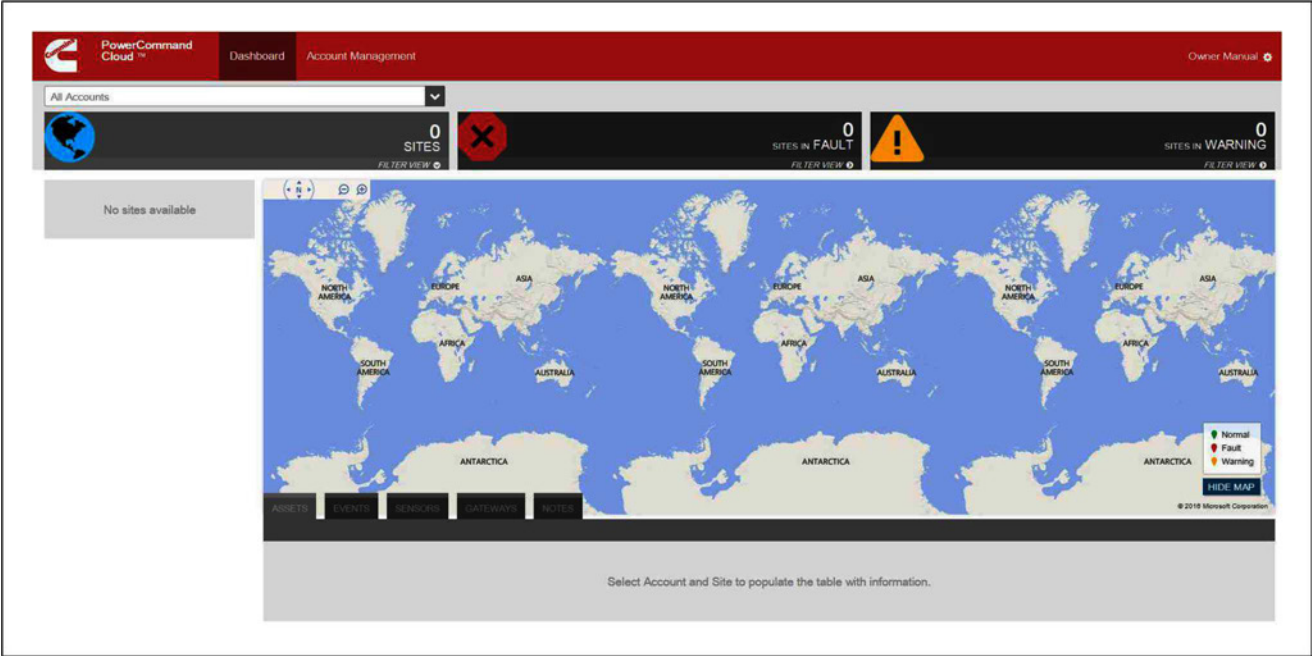
FIGURE 39.   POWERCOMMAND CLOUD DASHBOARD

8.1.4   My Profile

In My Profile, you can edit your name and contact telephone number. You can also select your Preferred Account if you have access to multiple accounts. This will determine which account you can see and manage from the dashboard. You can also select your Language, and set Metric or Imperial units.

Customer users can change the password in My Profile via the link in the Login Info section.

NOTICE
Cummins Employees and Dealers will not have the option to change their password in My Profile.

My Profile is also where you can setup your email notifications. You must click the Enable option, and select which account(s) you would like to receive notifications for. If you enable notifications, you will receive all fault events, warning events, and informational events by default, but you can select by severity to only receive certain notifications. You can also select an alternative email to receive notifications.

8.1.5   Site View
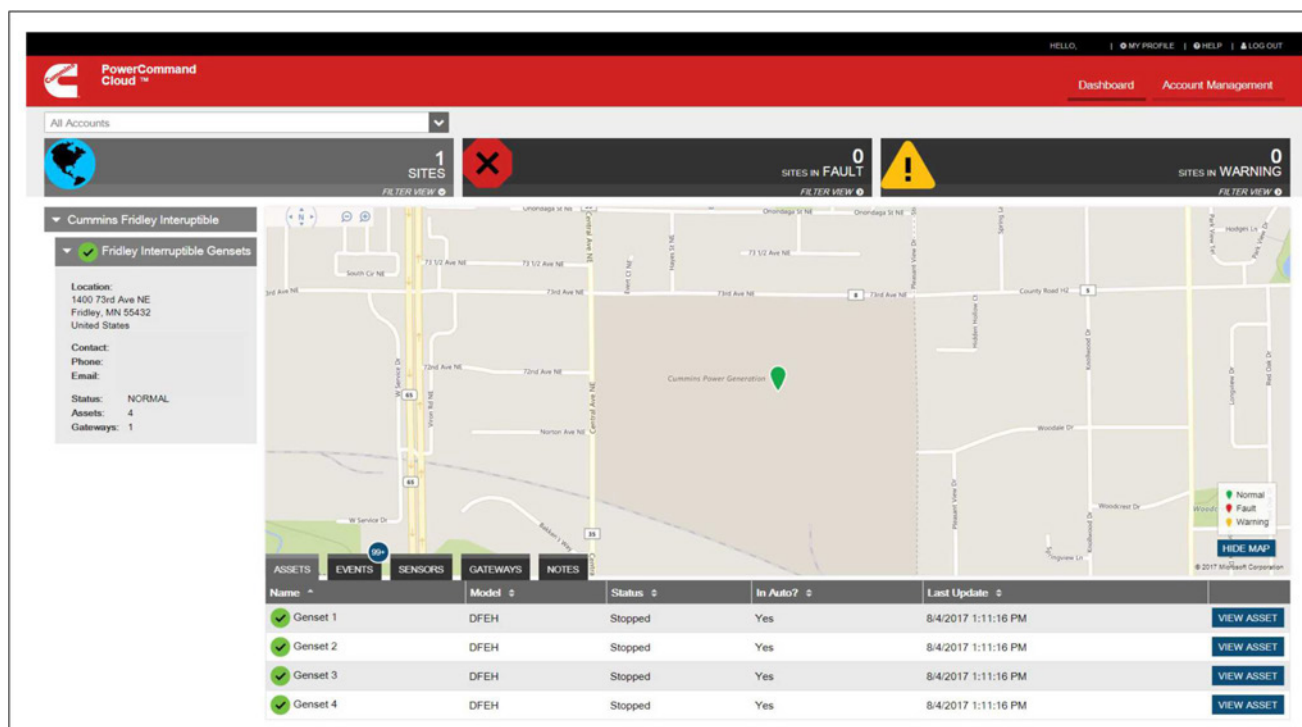
FIGURE 40.   POWERCOMMAND CLOUD SITE VIEW

1. ASSETS

   The Assets tab displays the list of assets that have been added to the site, the current status, and the time that status was last updated. You will also see the **VIEW ASSET** button for each asset where you will have additional features

2. EVENTS

   The Events tab displays a list of Active Events, as well as Acknowledged Events. To Acknowledge and event, simply check the box to the right of the event, and click the **ACK** box. You can also export the list of Active or acknowledged events by clicking the **EXPORT** box while that list is shown. In order to create the export report, you simply select the duration you would like to see (Past 1 Hour, Past 24 Hours, Past 7 days, Past 30 days or a Custom range of dates).

3. SENSORS

   The Sensors tab displays the sensors that have been added to your PC500/550 Cloud Link device.

4. GATEWAYS

   The Gateways tab displays the information from the PC500/550 Cloud Link unit that is linked to the site. This information includes the current Software Version that is installed. This is the tab where you will find software updates for the gateway.

5. NOTES

   The Notes tab allows you to make notes for the site. You can view, edit, and delete notes. You can also Search the notes using the search box.

8.1.6   View Asset
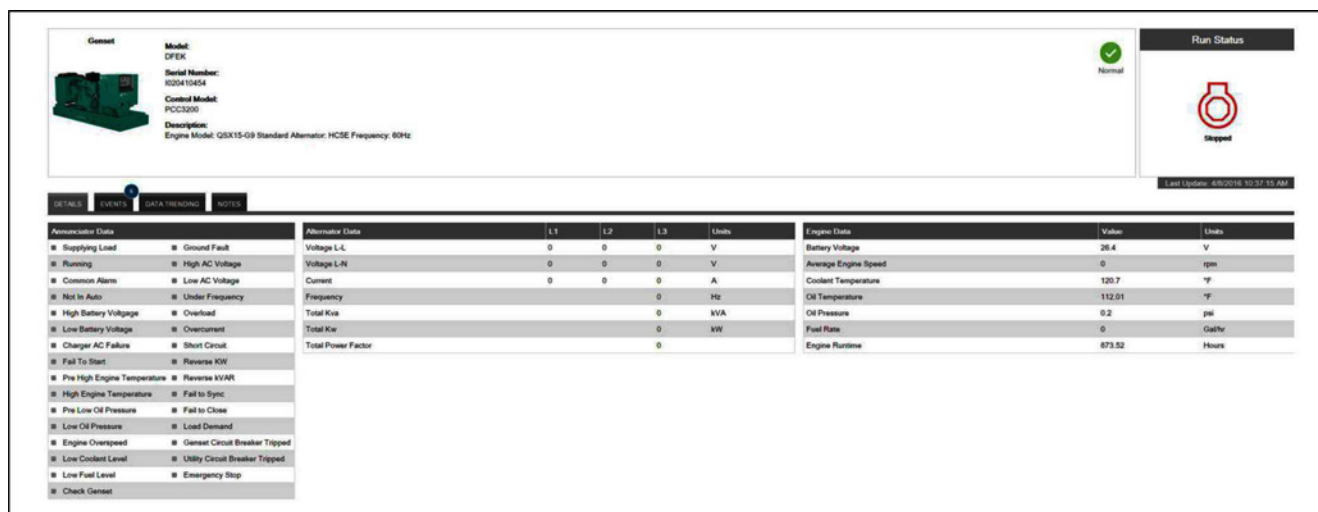
FIGURE 41.   POWERCOMMAND CLOUD VIEW ASSET

The Asset view page is the page where you can manually operate assets if you have the required site permissions. The commands will be listed in the Run Status box in the top right of the page.

1. DETAILS

    The Details tab displays the most current information for the asset.

2. EVENTS

    The Events tab displays a list of Active Events, as well as Acknowledged Events. To Acknowledge and event, simply check the box to the right of the event, and click the **ACK** box. You can also export the list of Active or acknowledged events by clicking the **EXPORT** box while that list is shown. In order to create the export report, you simply select the duration you would like to see (Past 1 Hour, Past 24 Hours, Past 7 days, Past 30 days or a Custom range of dates).

3. DATA TRENDING

    The Data Trending tab allows you to view selected parameters from the asset on a graph for the Past 1 Hour, Past 24 Hours, Past 7 days, or Past 30 days. A report can also be exported for an asset that contains selected parameters from the data log of a selectable time period (Past 1 Hour, Past 24 Hours, Past 7 days, Past 30 days or a Custom range of dates). Simple click the EXPORT button and select the Parameters and Duration from the pop up window.

4. NOTES

    The Notes tab allows you to make notes for the asset. You can view, edit, and delete notes. You can also Search the notes using the search box.

5. EXERCISE SCHEDULE

    You can set an exercise schedule for a generator via the PowerCommand Cloud. The exercise schedule information is then sent and stored in the PC500/550 Cloud Link connected to that asset.

NOTICE
Setting an exercise schedule via the PowerCommand Cloud will not overwrite or disable any existing exercise hardware such as an automatic transfer switch.

8.1.7   Account Management

Account Management is used to manage your accounts, including account details, users, and sites. If you have a Customer account, you will only be able to manage your own account. If you have a Dealer account, you will be able to manage your own account, as well as all of your customer accounts. If you have a Distributor account, you are able to manage your own account, your direct customer accounts, and your dealer accounts.

1. Account Details

   Account details displays the current status of the account, as well as the name and contact information for the account owner. You can edit an accounts name and contact information from this screen.

2. Users

   The Users Screen allows you to send invitations to the particular account for new users to join, as well as view all current users and their roles, and view the open invitations that have not yet been accepted.

3. Sites

   The Sites screen shows the details for all of the sites belonging to the selected account. This is where new sites are added to the account by clicking on the **ADD NEW** button. You also receive device access keys in the site view, and add assets to a site.

8.2   PowerCommand Mobile Application

Download the PowerCommand Cloud Mobile application from the Apple app store or the Google Play store. The Mobile application offers many of the features of the web application, however, to fully utilize your PC500/550 Cloud Link unit, we recommend logging into the web application at https://portal.powercommandcloud.com.
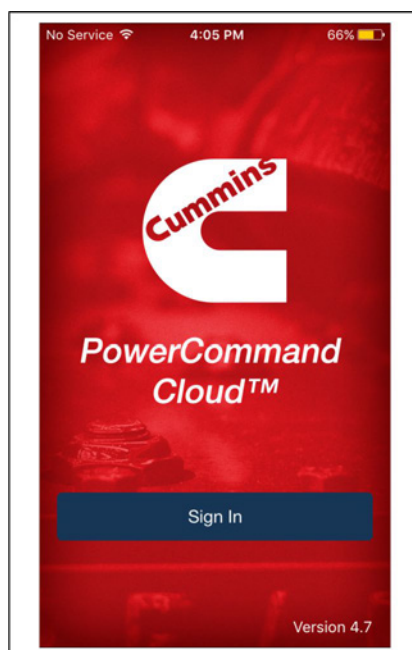
FIGURE 42.   MOBILE APP SCREEN

8.3   Setup Gateway Home Page Dashboard Screen

Once you have devices configured, the Home Page dashboard screen appears as shown.

FIGURE 43.   HOME PAGE DASHBOARD SCREEN

8.4   Menu Bar

The Menu Bar is displayed at the top of every page.
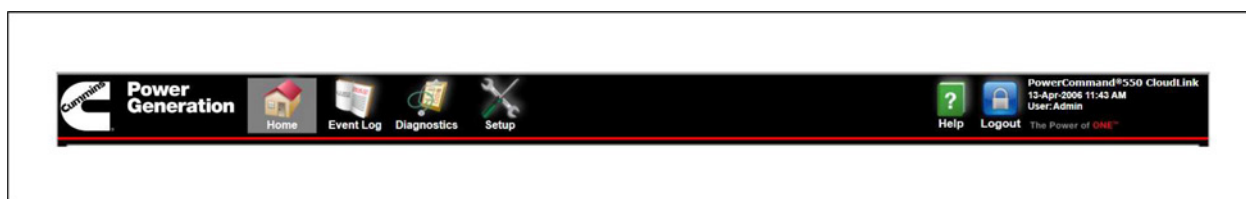
FIGURE 44.   MENU BAR

The Menu Bar provides navigation to the following pages:

- Event Log
- Diagnostics
- Setup

The **Help** button provides access to the system help files.

The **Logout** button logs the user out of the User Interface.

The right side of the Menu Bar displays:

- Product Model
- Current date and time
- User that is currently logged onto the system

8.5   System Status Bar

The System Status Bar is displayed on every page under the Menu Bar. The status bar indicates whether the Cloud Link device has a current ethernet or 3G connection, and whether or not the device has communications with the PowerCommand Cloud. It also displays information, warning, and fault and error messages (the latest 10 messages). The fault icon, source (device name) of the event, event type, fault event code, and description are displayed in each message. Messages are displayed as they occur. The order number and total number of messages are displayed on the right side of the status bar. The up and down arrows allow the operator to cycle through the messages.

Clicking on the System Status Bar causes the Event Log to be displayed.

When there are no fault messages, the following message is displayed.

No.	Description	No.	Description
1	Information Icon	6	Warning Fault Icon
2	Source (Device Name)	7	Fault Icon, Error Icon
3	Event Type	8	System Status OK
4	Event Code	9	Internet Status
5	Event Description	10	Cloud Connectivity Status
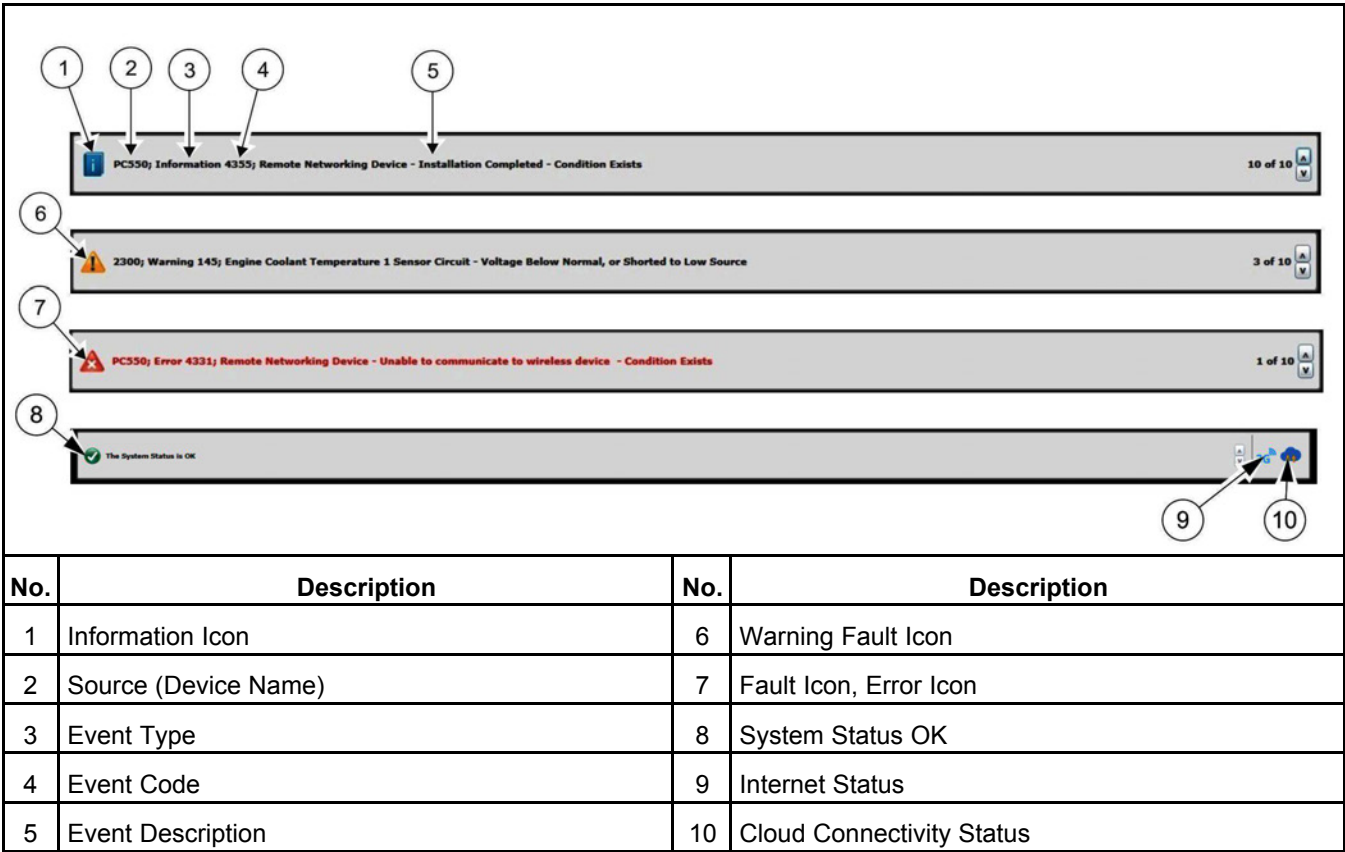
FIGURE 45.   SYSTEM STATUS MESSAGE EXAMPLES

8.6   Home Page

The Home Page is the first page displayed when a user logs in. When devices are configured into the system, the Home Page displays a dashboard showing device status and information and allows for device parameter graphs to be shown on the right side.

FIGURE 46.   HOME PAGE

8.7 Event Log Page
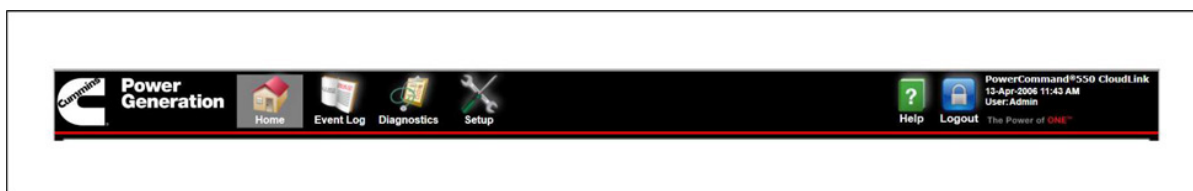
The system Event Log Page displays a list of active or acknowledged events.

8.7.1 Active Events

Events are pushed to the cloud immediately. If the network is disconnected, the event log page shows all active events until the colud connection is established.

FIGURE 47. ACTIVE EVENTS

The page number and number of pages are shown on the bottom right side of the screen. When there are multiple pages, use the paging control buttons on the left to view the first, previous, next, or last page.

8.8 Diagnostics Page
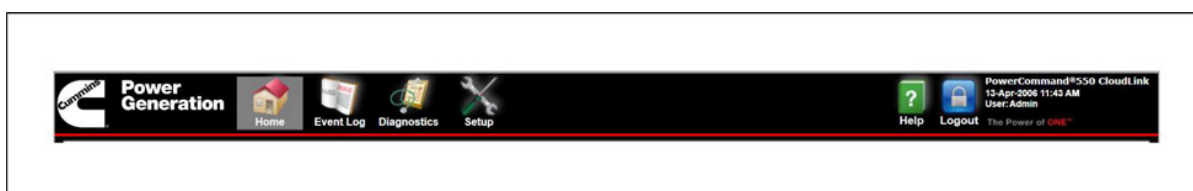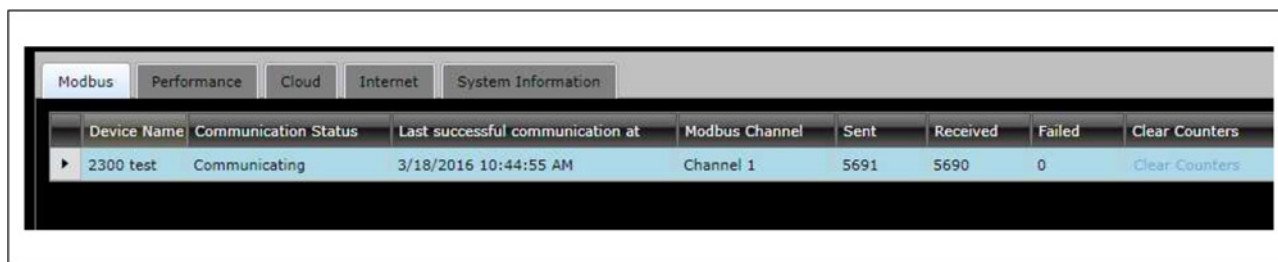
The Diagnostics Page provides 5 tabs for displaying diagnostic information.

- Modbus
- Performance
- Cloud
- Internet
- System Information

8.8.1 Modbus

The Modbus tab displays the Modbus communication status of all monitored devices.
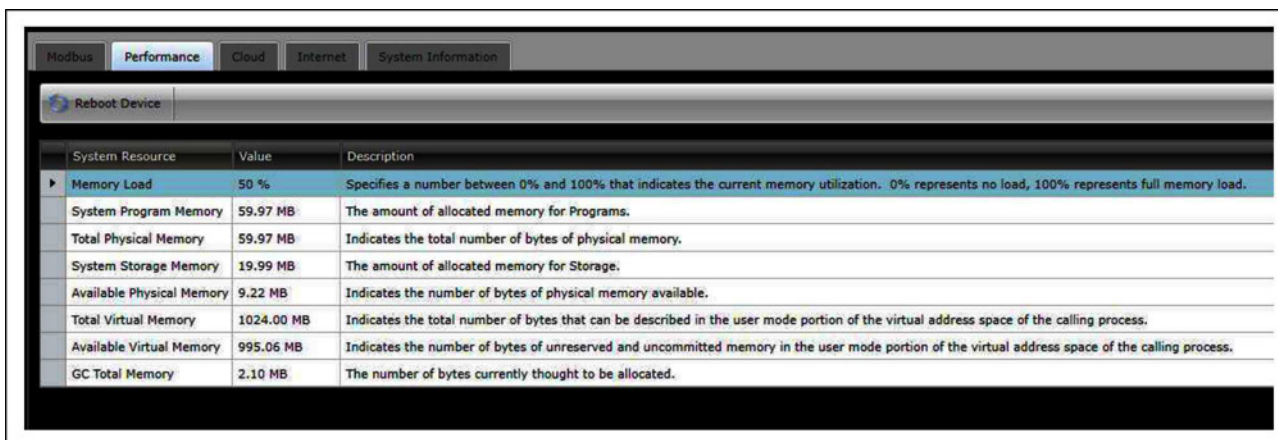
FIGURE 48.   MODBUS

8.8.2   Performance

The performance tab displays a list of performance data and allows the user to perform a soft reboot/restart of the PC500/550 Cloud Link System.

FIGURE 49.   PERFORMANCE

To Reboot the device:

1. Select **Reboot Device**. The following message is displayed:

FIGURE 50.   RESET MESSAGE

2. Select **OK**.

3. When the reboot completes, the following message is displayed:

FIGURE 51.   REBOOT SUCCESSFUL

4. Select **OK**.

8.8.3   Cloud

The Cloud tab displays the current cloud connection status, the length of time you have been connected, and the total number of disconnects, and failures to reconnect. You can reset the counters by clicking on Clear Counters. You must have an internet connection to connect to the cloud.

FIGURE 52.   CLOUD

8.8.4   Internet

The internet tab displays the current internet connection status, the length of time you have been connected, and the total number of disconnects, and failures or reconnect. You can reset the counters by clicking on Clear Counters.

Also, click on Get Wireless Data to see your wireless signal strength.
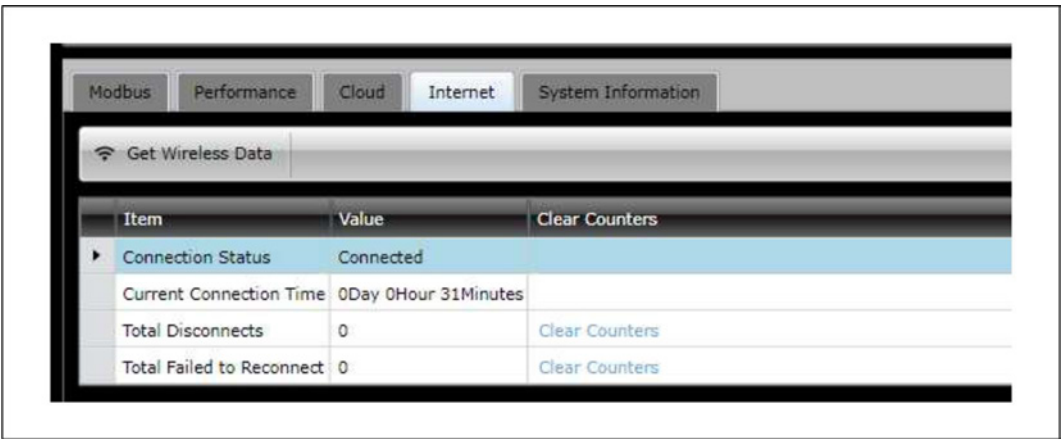
FIGURE 53.   INTERNET

8.8.5   System Information

The System Information tab displays the hardware and software information from the device. You can also view the IMEI here if the data tag on the unit is ever damaged or removed.
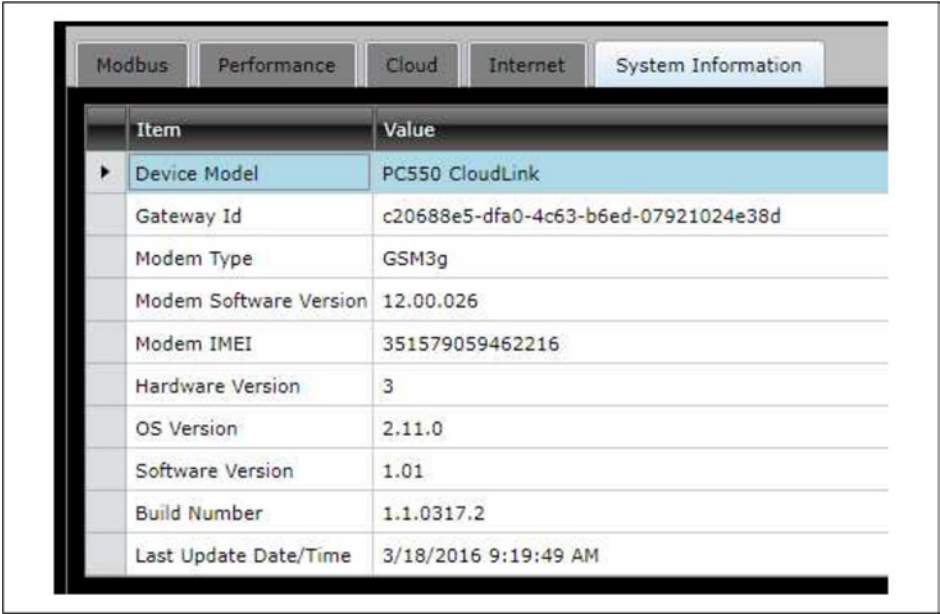
FIGURE 54.   SYSTEM INFORMATION

This page is intentionally blank.

9   Troubleshooting

Troubleshooting provides corrective actions for event codes and symptom-based faults. If a problem is not resolved after taking the corrective actions suggested, contact a local dealer or distributor. See **Section 2.3**.

9.1   Event Codes

9.1.1   ⚠ Code 319 – Real-Time Clock Backup Battery – Very Low Voltage

The PC500/550 Cloud Link has detected a very low battery voltage in the real-time clock battery inside the PC500/550 Cloud Link.

Possible Cause	Corrective Action
The voltage on the internal battery of the PC500/550 Cloud Link has decreased to a point where it will no longer back up the real-time clock of the PC500/550 Cloud Link. This can be due to a defective battery or a battery that has been used for a long period of time.	Replace the real time clock battery with 3 VDC battery.
If the battery has been recently replaced, the wrong battery may have been installed.	Make sure the battery is 3 VDC battery. If not, replace it with a 3 VDC battery.
Refer to **Chapter 11 on page 83** for the battery replacement procedure.	

NOTICE
Internal battery replacement should be done by a certified distributor; otherwise the warranty will be voided.

9.1.2   ⚠ Code 762 – Real-Time Clock Backup Battery Voltage Above Normal Operating Range

The PC500/550 Cloud Link has detected a high battery voltage in the real-time clock battery inside the PC500/550 Cloud Link.

Possible Cause	Corrective Action
The battery has been replaced with a battery that does not meet the specifications for this application.	Make sure the battery is 3 VDC battery. If not, replace it with a 3 VDC battery. Refer to **Chapter 11 on page 83** for the procedure to replace the battery.

NOTICE
Internal battery replacement should be done by a certified distributor; otherwise the warranty will be voided.

9.1.3 ⚠ Code 763 – Real-Time Clock Backup Battery Voltage Below Normal Operating Range

The PC500/550 Cloud Link has detected a low battery voltage in the real-time clock battery inside the PC500/550 Cloud Link.

Possible Cause	Corrective Action
The battery is running low because of the amount of time in service (battery will normally last for 10 years under normal conditions).	Replace the real-time clock battery with a 3 VDC battery.
If the battery has been recently replaced, the wrong battery may have been installed.	Make sure the battery is 3 VDC battery. If not, replace it with a 3 VDC battery.
Refer to **Chapter 11 on page 83** for the procedure to replace the battery.	

NOTICE
Internal battery replacement should be done by a certified distributor; otherwise the warranty will be voided.

9.1.4 ⊗ Code 4332 – Loss of Communication with (device) on Channel 1 or 2

The PC500/550 Cloud Link has lost communication with a Modbus device on one or both of the channels.

	Corrective Action	
Possible Cause	**PCC 2100, PCC 3100, PCC 3200, PCC 3201 and ATS Controls**	**PCC 1301, PCC 1302, PCC 2300, PCC 3300, PS0500 Controls**
There has been a power interruption to the device that the PC500/550 Cloud Link is monitoring.	1. Verify if there has been a power interruption to the Modlon that is sending Modbus information from the device to which communication was lost. 2. If Modlon has not lost power, check if any of the devices (Generator Sets or ATSs) connected to the Modlon have lost power to their controls. • For generator sets, this fault can be caused if a generator set battery is disconnected. • For ATSs, this fault can be caused if there is not a B+ on J27-21 of the ATS digital board and there is an interruption to the utility power.	If the battery of any of the generator sets being monitored is disconnected, make sure that the generator set that has lost communication to the PC500/550 Cloud Link is properly energized.
The Modbus RTU protocol of the device (Generator set or ATS) that is being monitored is not detected.		Verify that Modbus protocol is enabled on the device (Generator Set or ATS) that is being monitored. This can be verified by navigating through the control's display or by connecting to the control with the InPower service tool.
The Modbus settings on the device do not match the settings on the PC500/550 Cloud Link channel.	Browse to the Modlon that is sending the data for the device that has communication issues and verify that the settings on the nciModLonCfg network match the settings on the Modbus Settings menu in the PC500/550 Cloud Link user interface.	Connect the control to the InPower service tool or navigate through the display and verify that the control Modbus settings match the settings on the Modbus Settings menu in the PC500/550 Cloud Link user interface.
Modbus data cable connected with an inverted polarity to the channel Terminal Block (TB2) of the PC500/550 Cloud Link. (Modbus RTU protocol is polarity sensitive.)	On TB2, verify that the Modlon to PC500/550 Cloud Link cable is properly connected on the channel being used to monitor the equipment. Make sure that the wires are not inverted.	Verify that all devices are daisy chained properly (no inverted cable) and that the + and – of the cable matches the labeling on PC500/550 Cloud Link TB2. One inverted cable can cause communication failures with all devices.
Bad Modbus device.	Use LonMaker to verify that all Lon devices are properly commissioned and communicating with each other. If so, connect ModScan, or other modules monitoring software, to verify that all Modbus information is being received from ModLon II.	Use ModScan, or any other Modbus monitoring software, to verify that all Modbus information is being received from the control or AUX101.

Possible Cause	Corrective Action	
	PCC 2100, PCC 3100, PCC 3200, PCC 3201 and ATS Controls	PCC 1301, PCC 1302, PCC 2300, PCC 3300, PS0500 Controls
Connected to an incorrect Modbus channel on the PC500/550 Cloud Link.	On the Device Configuration page in the Setup menu of the PC500/550 Cloud Link UI, verify that the device is configured to use the channel it is connected to.	On the Device Configuration page in the Setup menu of the PC500/550 Cloud Link UI, verify that the device is configured to use the channel it is connected to.
Wrong Modbus address on device.	Each Modbus device should have a unique Modbus address on the network. Use LonMaker to verify the ModLon address. Verify that the Modbus address for the ModLon matches the Modbus address entered on the Device Configuration page in the Setup menu of the PC500/550 Cloud Link UI.	Each Modbus device should have a unique Modbus address on the network. Verify that the Modbus address for the ModLon matches the Modbus address entered on the Device Configuration page in the Setup menu of the PC500/550 Cloud Link UI.
Wrong index or template.	The index is the third number on the Modbus register that the ModLon sends for each control. For example, Gen1 has registers 40000-400, Gen2 has 40100-401, and so on. The index for Gen 1 is 0 and the index for Gen2 is 1. Make sure the correct index is selected for each of the devices being monitored.	

9.1.5 🔴 Code 4351 – AUX102 Not Detected

The AUX102 is configured in the PC500/550 Cloud Link but it is not detected.

Possible Cause	Corrective Action
The AUX102 is configured in the PC500/550 Cloud Link UI but is not physically connected to the AUX101.	Physically connect the AUX102 to the AUX101.
There is a bad connection between the AUX101 and AUX102.	Verify the connection between the AUX101 and AUX102.
Bad AUX101 or AUX102 module.	Verify active communication between the AUX101 and the PC500/550 Cloud Link by looking at LEDs DS1 and DS2 on the AUX101. DS1 should be illuminated green and DS2 should not be illuminated. Also, verify that AUX101 is in Modbus mode ("H" is displayed on AUX101 LED display). If no communication error is present and the problem persists, connect the AUX101 to a Modbus analyzer like ModScan and verify information is received from the AUX101 module. If AUX101 information is present but there is no AUX102 information, replace the AUX102.

9.1.6 ⬛ Code 4353 – Software Download Failed

Possible Cause	Corrective Action
The memory load on your unit may be too high	Cycle the power to the processor by pressing the reset button then attempt to download the Software again.

9.1.7 ⬛ Code 4354 – Software Download has been Started

Possible Cause: Indicates that a firmware/software download has been started.

Corrective Action: No corrective action is necessary for this code.

9.1.8 ⬛ Code 4355 – Software Update Successful

A software update was performed on the PC500/550 Cloud Link and the update was done successfully.

Possible Cause	Corrective Action
PC500/550 Cloud Link software update was successful.	This event notifies the user that software has been successfully updated. To acknowledge the event and prevent this code from being displayed on the UI System Status bar, select the Event Log page and click on the green check box in the Acknowledge column for this event. This event is moved to the Acknowledged Events tab.

9.1.9 ⬛ Code 4356 – Software Update Failed

A software update was performed on the PC500/550 Cloud Link and an error occurred.

Possible Cause	Corrective Action
Incorrect software file used to update software on the PC500/550 Cloud Link.	Verify that the latest software file from the INCAL website is being uploaded. ⚠ **CAUTION** *Uploading the wrong software file can cause permanent damage to the PC500/550 Cloud Link. Make sure to upload the correct file.*
A power interruption occurred during the software update.	Upload the correct software file again and ensure that there is no interruption to the system during this process.

9.1.10 🔴 Code 4357 – System Error

A critical issue within the PC500/550 Cloud Link operating system.

Possible Cause	Corrective Action
Corrupted software.	Reset the device. If the fault does not clear, upload the latest software version to the device. If the issue persists, contact your local distributor.
	Replacement of the device may be required.

9.1.11 ⚠ Code 4594 – \<Sensor\> has High Warning

The PC500/550 Cloud Link has detected that the value of an analog configurable input for the sensor shown in the event description has reached the preset high warning threshold.

Possible Cause	Corrective Action
The sensor shown in the event description has reached the preset high warning threshold.	Identify the sensor that is triggering the alarm and take corrective action.
The sensor that is triggering the fault may be damaged.	If the sensor is triggering the fault but the event is not occurring, verify the performance of the sensor. The sensor may be damaged and may need to be replaced.

9.1.12 ⚠ Code 4595 – \<Sensor\> has Low Warning

The PC500/550 Cloud Link has detected that the value of an analog configurable input for the sensor shown in the event description has reached the preset low warning threshold.

Possible Cause	Corrective Action
The sensor shown in the event description has reached the preset low warning threshold.	Identify the sensor that is triggering the alarm and take corrective action.
The sensor that is triggering the fault may be damaged.	If the sensor is triggering the fault but the event is not occurring, verify the performance of the sensor. The sensor may be damaged and may need to be replaced.

9.1.13 🔲 Code 5138 – Genset Control Not in Auto

Provides notification that the status of a generator set has changed from Auto mode to Not in Auto.

9.1.14 🔲 Code 5139 – Auto Transfer Switch Not in Auto

Provides notification that the status of an ATS has changed from Auto mode to Not in Auto.

9.1.15 🔲 Code 5141 – Source 1 Connected

Provides notification of the current connection status of source 1 for a specific ATS.

9.1.16 🔲 Code 5142 – Source 2 Connected

Provides notification of the current connection status of source 2 for a specific ATS.

9.1.17 🔲 Code 5143 – Genset Running

Provides notification that a specific generator set is now in running mode.

9.1.18 🔳 Code 5144 – Genset Stopped

Provides notification that a specific generator set has changed status from running mode to stopped.

9.1.19 ⚠ Code 5341 – <Sensor> is Active

Indicates that a discrete sensor attached to an input on the PC500/550 Cloud Link or AUX101/102 is in an active state.

Possible Cause	Corrective Action
The contact on the sensor sends a signal to the PC500/550 Cloud Link or AUX101/102 has changed position due to normal operation, indicating that a change has occurred on the system it is sensing.	Identify what the sensor is connected to and take the proper corrective action.
The configuration in the PC500/550 Cloud Link UI does not match the type of contact being used in the sensor.	If a normally open contact is used in the sensor sending the ground signal to the PC500/550 Cloud Link discrete input or AUX101/102 discrete inputs, the trigger mode for that sensor should be configured as active low. If a normally closed contact is being used, the trigger mode for the sensor should be configured as active high.

9.1.20 ⚠ Code 5342 – <Sensor> is Inactive

Indicates that a discrete sensor attached to an input on the PC500/550 Cloud Link or AUX101/102 is in an inactive state.

Possible Cause	Corrective Action
The action reported by the sensor has been corrected and the sensor is back to a normal state.	No action is necessary. The event is triggered when the trigger mode for the sensor is configured as State Change. The PC500/550 Cloud Link triggers events when the sensor state transitions to both the active and inactive states.

9.1.21 🔳 Code 5657 - Source 1 Available

Provides notification that source 1 is currently available.

9.1.22 🔳 Code 5658 - Source 2 Available

Provides notification that source 2 is currently available.

9.1.23 🔳 Code 5659 - Source 1 Not Available

Provides notification that source 1 is currently not available.

9.1.24 🔳 Code 5661 - Source 2 Not Available

Provides notification that source 2 is currently not available.

9.1.25 🔳 Code 5662 - Source 1 Disconnected

Provides notification that source 1 is currently disconnected.

9.1.26 🔋 Code 5663 - Source 2 Disconnected

Provides notification that source 2 is currently disconnected.

9.1.27 🔋 Code 5664 - Genset in AUTO

Provides notification that generator set is in Auto mode.

9.1.28 🔋 Code 5665 - ATS in AUTO

Provides notification that ATS is in Auto mode.

9.1.29 🔋 Code 5666 – Import Configuration Failed

Possible Cause	Corrective Action
The file you tried to import may be corrupted or incomplete	Cycle the power to the processor by pressing the reset button and attempt to import the configuration again. If you continue to experience issues, attempt to obtain or export the file configuration from the source again.

9.1.30 🔋 Code 5667 – Import Configuration Successful

Possible Cause	Corrective Action
A configuration import was initiated and completed successfully	No corrective action is necessary for this code.

9.1.31 🔋 Code 5692 - ATS Test/Exercise is Active

Provides notification that an ATS Test/Exercise is active.

9.1.32 🔋 Code 5693 - ATS Test/Exercise is Inactive

Provides notification that an ATS Test/Exercise is inactive.

9.1.33 🔋 Code 6736 – Restore to Factory Failed

Possible Cause	Corrective Action
The memory load on your unit may be too high	Cycle the power to the processor by pressing the reset button then attempt the Restore to Factory Settings again.

9.1.34 🔋 Code 6751 – Restore to Factory Successful

Possible Cause	Corrective Action
The Restore to Factory Settings was initiated	No corrective action is necessary for this code.

9.1.35 🔷 Code 6776 – Communication Resumes with (Device) on Channel 1 or 2

Possible Cause	Corrective Action
Communications with a device was restored	No corrective action is necessary for this code.

9.1.36 🔷 Code 6923 - Gateway "Name" is Offline

Provides notification that the Gateway with the corresponding name is offline or not communicating with the PowerCommand Cloud.

9.1.37 🔷 Code 6924 - Gateway "Name" is Online

Provides notification that the Gateway with the corresponding name is online and communicating with the PowerCommand Cloud.

9.1.38 ⚠️ Code 7219 – All Faults Cleared

Clear faults command was sent to wired generator set.

9.1.39 ⚠️ Code 7377 - Configuration Update Successful

Changes to the exercise configuration have been updated.

9.1.40 ⚠️ Code 7378 - Configuration Update Failed

Changes to the exercise configuration have failed to update.

9.1.41 ⚠️ Code 7379 - Common Alarm

A common alarm is active from a wired generator set.

9.2   Symptom Based

Diagnosis of some problems involves observing system operation.

9.2.1   Cannot Access the PC500/550 Cloud Link User Interface

Possible Cause	Corrective Action
The PC500/550 Cloud Link lost power.	Verify that the green power LED on the PC500/550 Cloud Link is solidly on. If the power LED is not on, check the voltage between TB1-1 and TB1-2. The voltage should be in a range between 9 and 32 VDC. If the voltage is out of range, check the status of the power supply and troubleshoot the interconnection wire accordingly.
The local network to which the PC500/550 Cloud Link is connected is currently down.	Contact your IT administrator or Internet provider to verify the status of the network. At least a 10x100 Mbit service is required in order to have a good connection speed to the PC500/550 Cloud Link user interface.

Possible Cause	Corrective Action
PC500/550 Cloud Link locked up due to an abnormal condition.	Cycle power and/or reset the PC500/550 Cloud Link. This can be done by disconnecting the ground cable on TB1-2 and/or pushing the **Reset** button, respectively. Allow the PC500/550 Cloud Link to boot up completely after cycling power before trying to log in to the user interface. This process may take up to 10 minutes.
A warning appears for the websites security certificate.	Make sure you select to Continue to the Website. This warning appears because of the HTTPS URL and this message is normal.
The internet browser does not support Microsoft Silverlight .	Utilize internet explorer to access the PC500/550 Cloud Link user interface. Download and install the latest version of Microsoft Silverlight.

9.2.2   User Interface Taking Too Much Time to Load

Possible Cause	Corrective Action
The PC500/550 Cloud Link may be locked up due to an unexpected event.	Cycle power and/or reset the PC500/550 Cloud Link. This can be done by disconnecting the ground cable on TB1-2 and/or pushing the **Reset** button, respectively. Allow the PC500/550 Cloud Link to boot up completely after cycling power before trying to log in to the user interface. This process may take up to 10 minutes.

9.2.3   PC500/550 Cloud Link Not Displaying Correct Information on User Interface

Possible Cause	Corrective Action		
	PCC 1301, PCC 1302, PCC 2300, and PCC 3300 Controls	**PCC 2100, PCC 3100, PCC 3200, PCC 3201, and ATS Controls**	**Remote I/Os**
The device that is being monitored is not configured properly.	On the Device Configuration page in the Setup menu of the UI, identify the generator set with incorrect readings in the Device Name column. Verify that the Device Model column is the correct model for the control of the device. If the model is not correct, select the generator set that is displaying incorrect information and select **Edit** to make the proper changes.	On the Device Configuration page in the Setup menu of the UI, identify the generator set or ATS with incorrect readings in the Device Name column. Verify that the Device Model column is the correct model for the control of the device. If the model is not correct, select the generator set or ATS that is displaying incorrect information and select **Edit** to make the proper changes.	On the Device Configuration page in the Setup menu of the UI, identify the AUX with incorrect readings in the Device Name column. Select the AUX device and select **Edit** to verify that the inputs of the AUX module are configured according to the type of sensor that is being used on each of the different inputs.
Calibration of a control needs to be updated.	Connect the control that is displaying incorrect information to Modbus master software, such as ModScan. Use the *Modbus Register Mapping* (A029X159) manual to understand the meaning of each Modbus register. If the registers do not match what is displayed for the generator set in the UI, use the latest available calibration from the INCAL website and perform an calibration update on the generator set control.		

Possible Cause	Corrective Action		
	PCC 1301, PCC 1302, PCC 2300, and PCC 3300 Controls	PCC 2100, PCC 3100, PCC 3200, PCC 3201, and ATS Controls	Remote I/Os
Control has incorrect Modlon index.		Open the LonWorks database that was used to commission the generator sets and ATSs with LonWorks cards. Verify what equipment is commissioned as Gen1, Gen2, etc.; and ATS1, ATS2, etc., on the Modlon template. Make sure that the UI index numbers are assigned correctly (Gen1 has an index number, Gen2 has index of 1, and so on; and the same for ATSs.	
Sensor is not configured properly.			On the Sensors and Output Controls page in the Setup menu of the UI, select the sensor that is displaying wrong information. Verify that the sensor type (analog or discrete) is correct. Select **Edit** to verify the configuration of the sensor. Make sure the sensor has the correct units for what is being measured and that the sensor voltage limits are set properly for what the sensor is sending to the AUX101/102.
Telemetry information from devices are not visible on the gateway user interface.	This is the correct functionality of a PC500/550 Cloud Link. You will not see device information in the gateway user interface like you may be used to seeing on the PC500/550 Classic. Telemetry information is all sent to the Cloud and visible at portal.powercommandcloud.com.		

9.2.4   Cannot Get an Internet Connection Via Ethernet. The Internet Connection Indicator on the Setup Gateway is Grayed Out

Possible Cause	Corrective Action
No active connection to the Internet via Ethernet	Verify you have an active Internet connection via Ethernet. Disconnect the Ethernet from the Cloud Link device and plug it into a computer. If the computer connects via Ethernet then the Cloud Link should as well.

9.2.5   Cannot Get an Internet Connection Via Wireless 3G. The Internet Connection Indicator on the Setup Gateway is Grayed Out

Possible Cause	Corrective Action
Wireless Data is set to **Disable** on your Cloud Link device	In the gateway setup, navigate to **Setup**, then **Cellular Preferences** and ensure that **Wireless Data** is set to **Enable**.
Insufficient signal at your antenna	In the gateway setup, navigate to **Setup**, then **Cellular Preferences**. Click on **Get Wireless Data**. This gives the signal strength as 0-5 bars. If you have 0-3 bars, relocate your antenna using the optional antenna extension.
SIM card is not properly inserted	Check that the SIM card is fully seated. The SIM card should be inserted with the contacts down, slid in with the notch facing the opening until it's edge is flush with the end of the circuit board.
SIM card not be properly activated	Check with your data provider that the SIM card is activated for 3G data.
An Ethernet cord is plugged into your Cloud Link device	If available, the Cloud Link will give priority to Ethernet connections. Disconnect any Ethernet cords from the Cloud Link to use the 3G wireless connection
Your Cellular preferences are not being saved after enabling wireless and entering an APN.	Make sure you are getting a confirmation message after saving cellular preferences. If you do not get a confirmation message, update the software on your PC500/PC550 Cloud Link unit.
The APN entered is not correct .	Verify your APN with your cellular provider is applicable for 3G GSM data.

9.2.6   Cannot Get a Connection to the Cloud via Ethernet. The Internet Connection Indicator on the Gateway Setup is Colored, but the Cloud Indicator is Grayed Out.

Possible Cause	Corrective Action
The Cloud Link uses port 8883 for MQTTS to communicate with 168.61.54.255. The Cloud Link also uses port 443 for HTTPS to communicate with 40.114.00.153. Both of these ports need to be open in the networks firewall for the Cloud Link to communicate with the Cummins Cloud.	Contact your local IT support to verify open access to ports 8883 and 443.
Ensure your Gateway Access Key perfectly matches the key for your site from the PowerCommand Cloud portal.	Copy and Paste the Access Key from the PowerCommand Cloud portal to the Gateway device.

9.2.7   Cannot Get a Connection to the Cloud via Wireless 3G. The Internet Connection Indicator on the Gateway Setup is Colored, but the Cloud Indicator is Grayed Out.

Possible Cause	Corrective Action
Ensure your Gateway Access Key perfectly matches the key for your site from the PowerCommand Cloud portal	Copy and Paste the Access Key from the PowerCommand Cloud portal to the Gateway device.

9.2.8   Did Not Receive an Invitation Email From noreply@powercommandcloud.com

Possible Cause	Corrective Action
Invitation went to Junk or Spam folder of your email provider	Check the Junk or Span folder of your email. Verify that the Dealer or Distributor where the PC500/PC550 Cloud Link was purchased created your account and sent the invitation. Also verify that the email address the dealer/distributor used to create your account is correct.

9.2.9   Unable to Access portal.powercommandcloud.com

If you are with a Cummins Distributor or Dealer, you can register for an account by going through the registration process. You will need to know your Service Provider code, and your Distributor Code in order to complete the registration.	After you register, Cummins Dealers and Distributors must sign in using the Cummins Employees and Dealers Sign in, using your Cummins ID and common password.
If you are a customer, you must receive an invitation from the dealer or distributor that sold you your Cloud Link device.	Contact the Dealer distributor that sold you your Device and let them know you didn't receive an email invitation.
You forgot your password, or username.	Click on the "Forgot your password?" Link to look up your username or password.

9.2.10   Unable to Add New Asset on the Web Application

Possible Cause	Corrective Action
Add your devices in the gateway setup before adding them on the web application. The PC500/PC550 Cloud Link also needs to send information to the cloud after all device changes have been made.	See **Section 6.7 on page 33** for more information on adding devices in the device configuration. Also see **Section 6.5 on page 31** for more information on cloud connectivity.
The Model I have is not available in the dropdown list.	You may select a similar model for the time being. The model does not affect how any of the other information is recorded or displayed. Inform your Distributor that the model is missing. Missing models can manually be added by an Administrator.

Possible Cause	Corrective Action
I am receiving a popup error message when I try to add new asset.	Assets/Devices first need to be added in the Gateway Device Configuration and the Gateway has to have an active cloud connection with the specific site you're trying to add an asset to.

9.2.11 Unable to View Data Trending from a Device Over 30 Days Old

Possible Cause	Corrective Action
From the data trending view on the web application, the dropdown list only gives you the option to view data for up to 30 days	Click on the **EXPORT** button on the data trending page. A new window should appear. In the **Select Duration** dropdown for the new window, select **Custom**. You can now set your data range to any range of dates. Select the parameters you would like to view and click **EXPORT** in the new window and your file will include the data from all of the selected parameters for the selected date range.

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10   Parts Information

10.1   Standard Parts

Part Number	Description	Quantity
A057S709	Antenna	1
A052V281	PowerCommand 500CL (includes A034X336, A031C194, and A035H285)	1
A052V282	PowerCommand 550CL (includes A034X336, A031C194, and A035H285)	1
A034X336	Connector, 14 Pin (TB1)	1
A031C194	Connector, 9 Pin (TB2)	1
A035H285	Battery, 3V Lithium Coil Cell	1
A035C393	USB OTG Cable	1
A035C395	Ethernet Cable	1

10.2   Conditional Parts

Part Number	Description	Quantity
0541–1149*	ModLon II Gateway Kit	1
A040T087*	Modbus Connection Cable (DB9 to 2-Wire)	1
A035C381+	Antenna Extension	1
* Used for installations with legacy controls: PCC 2100, PCC 3100, PCC 3200, PCC 3201 generator set controls and OTPC, BTPC, OHPC, and CHPC transfer switch controls. + Used for installations in metal cabinets.		

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11   Real-Time Clock Battery Replacement

Before performing this procedure, make sure that there is no remote start or remote test send from the PC500/550 Cloud Link to a generator set or ATS.

1. Disconnect all terminal blocks, cables, and antenna extension cable from the PC500/550 Cloud Link.

2. Remove the 4 screws on the back of the PC500/550 Cloud Link and remove the cover.

⚠ CAUTION
Electrostatic discharge can damage circuit boards. Always wear a grounding wrist strap when handling circuit boards.

3. Remove the nut for the antenna extension cable.

4. Remove the circuit board from the enclosure by disconnecting the 2 clamps that secure the circuit board to the enclosure, one at a time, and pulling the circuit board up as the retaining clamps are being disconnected.

5. On the removed circuit board, carefully push the TRC battery out of the retainer with a small screwdriver.

> ⚠ **CAUTION**
>
> *Pushing on the battery too hard can damage the soldering of the battery retainer. Take extra precaution when removing the battery.*

6. Insert the new battery and reassemble the PC500/550 Cloud Link.

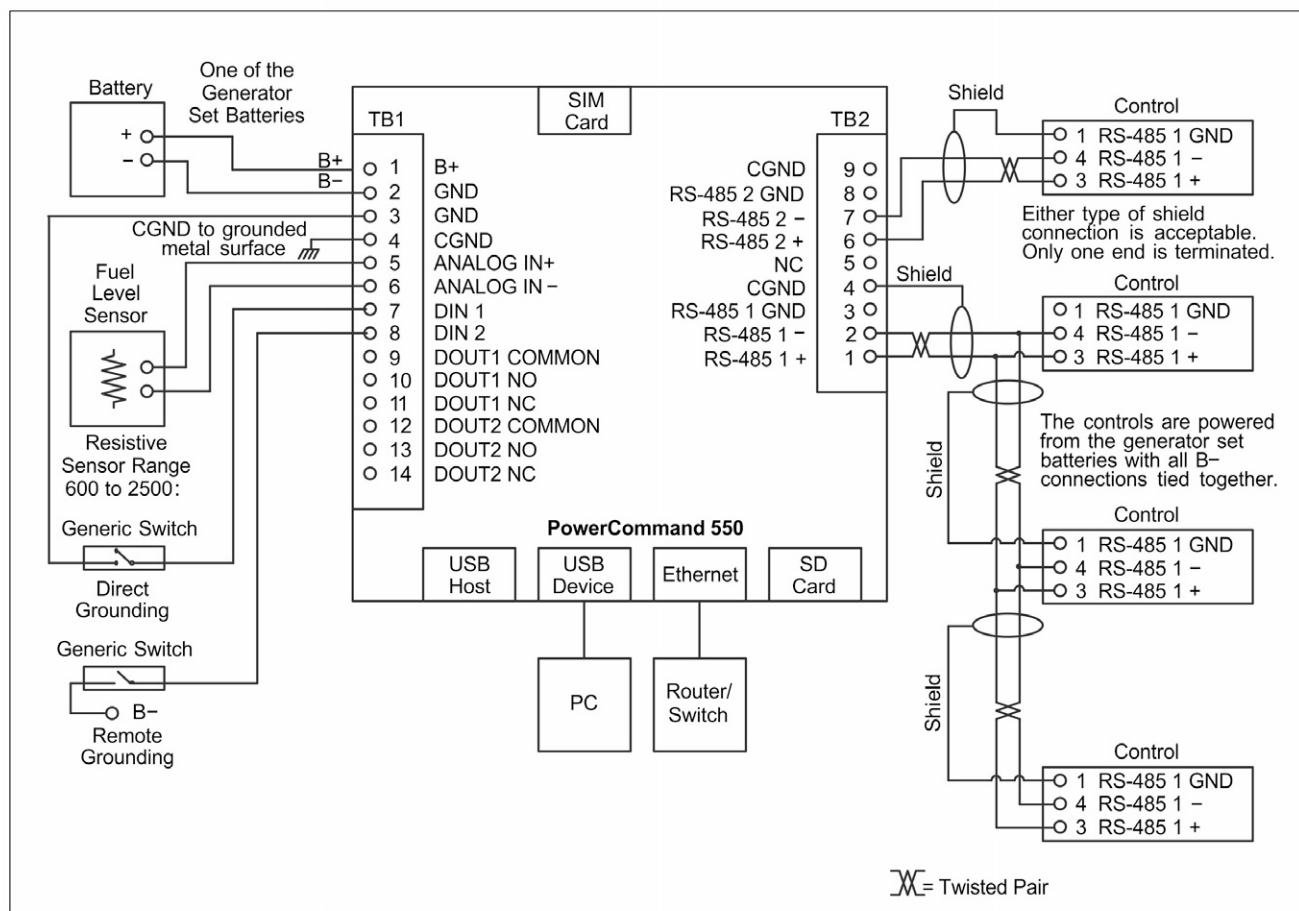# Appendix A. External Connectivity Diagrams

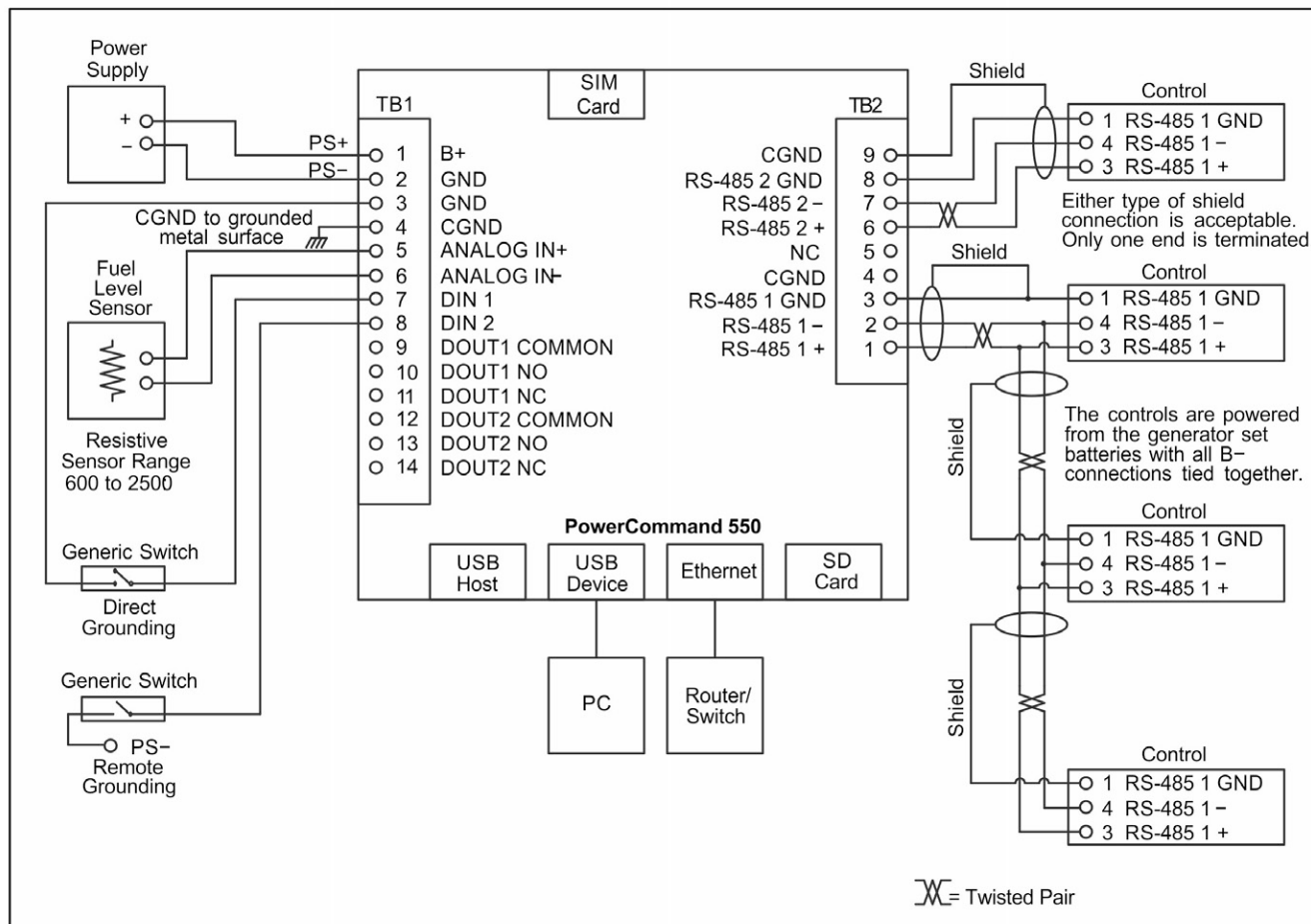## Table of Contents

FIGURE 55.   COMMON POWER SUPPLY - WITH SENSORS

FIGURE 56.   SEPARATE POWER SUPPLY - WITH SENSORS
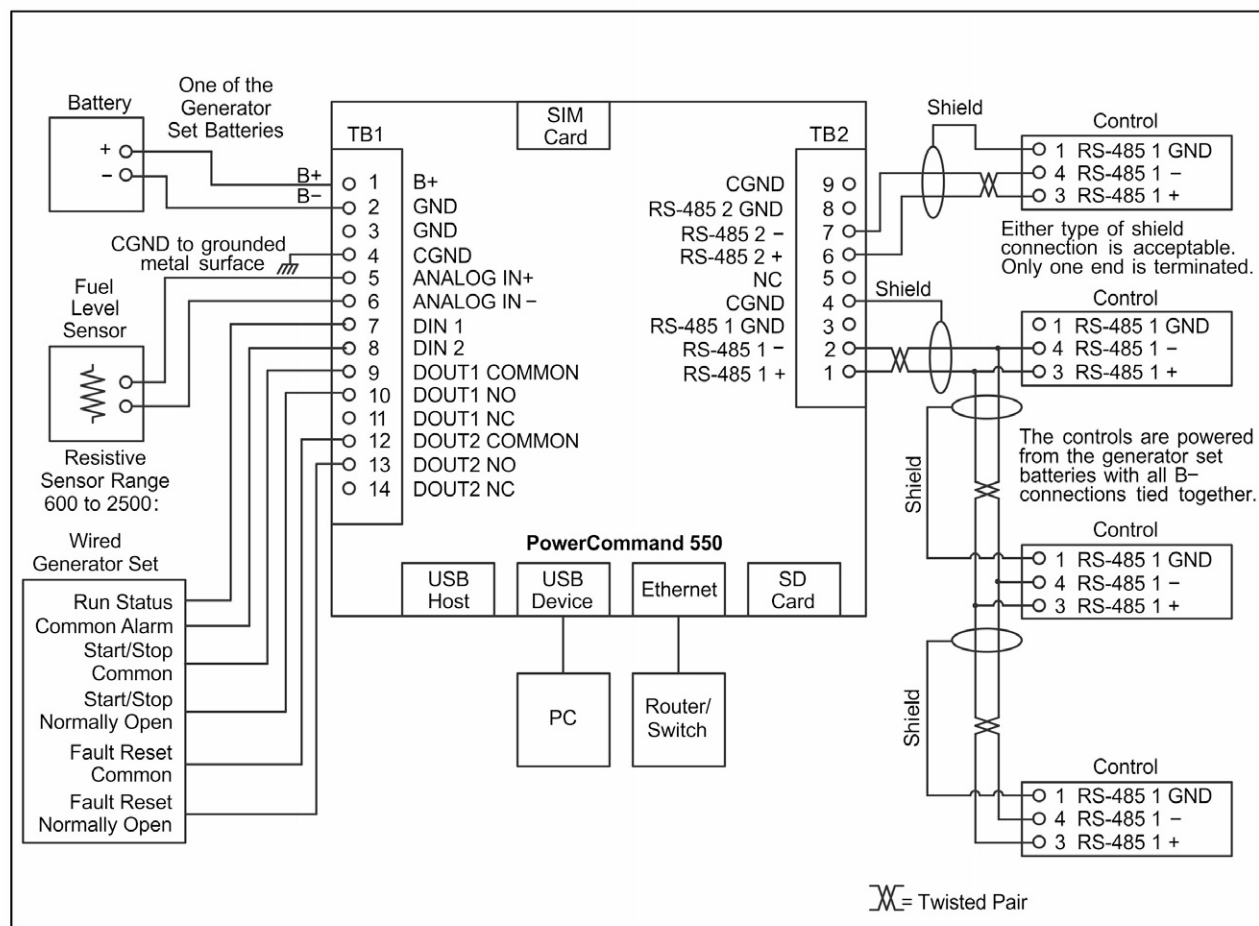
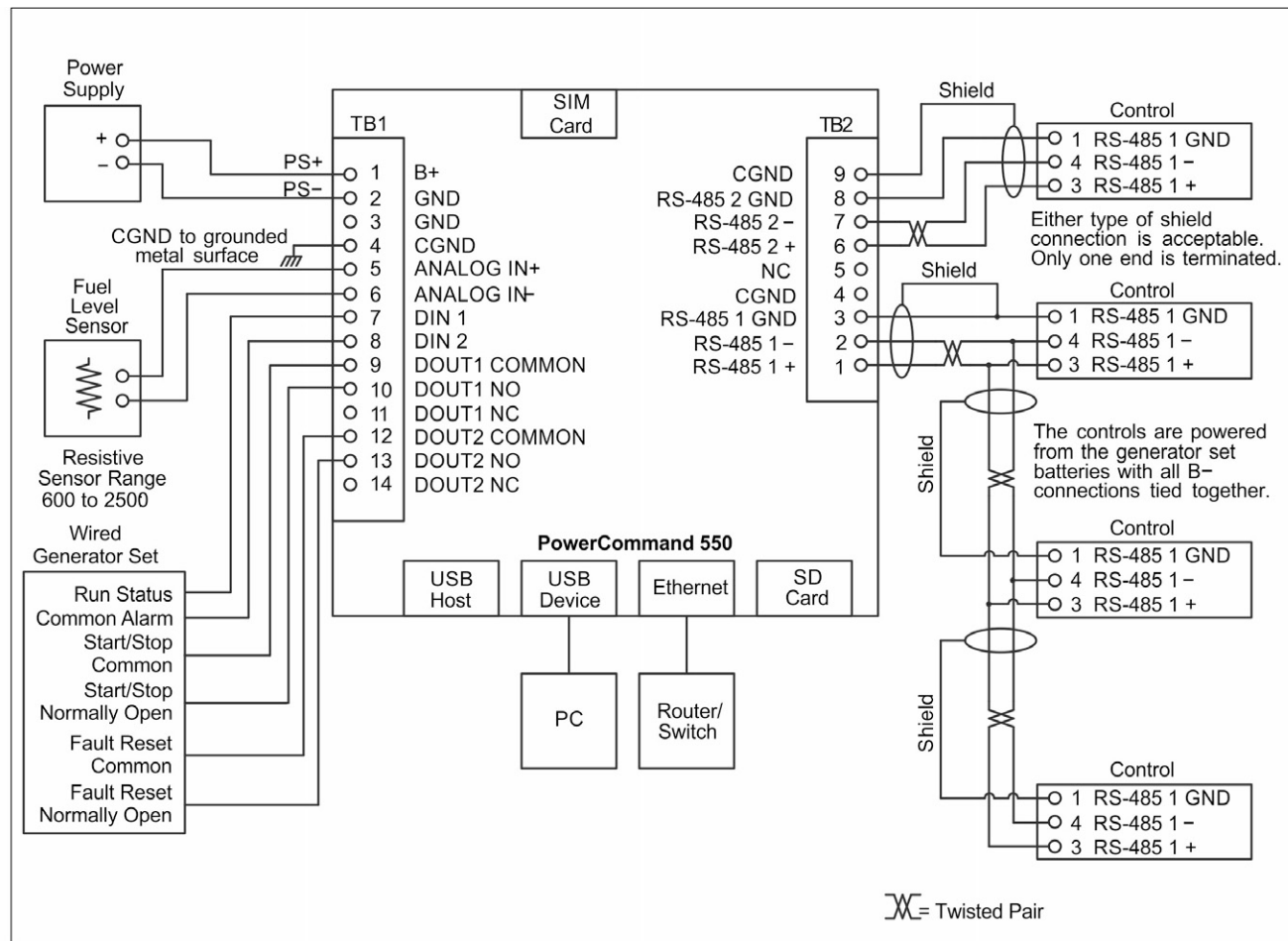**FIGURE 57. COMMON POWER SUPPLY - WITH WIRED GENERATOR SET**

FIGURE 58.   SEPARATE POWER SUPPLY - WITH WIRED GENERATOR SET

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