



MDE-5623A

# Fleet Solutions Site PRIME Installation Manual

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## **SAFETY CONSIDERATIONS**

Carefully read all warnings and instructions, provided to help you install and maintain the equipment safely in the highly flammable environment of a gas station.

Disregarding these warnings and instructions could result in serious injury and property loss or damage. It is your responsibility to install, operate and maintain the equipment according to the instructions in this manual, and to conform to all applicable codes, regulations and safety measures. Failure to do so could void all warranties associated with this equipment.

Ensure that the installation is performed by experienced personnel, licensed to perform work in gas stations and in flammable environments, according to the local regulations and all relevant standards.

### **WARNING - EXPLOSION HAZARD**

Use a separate conduit for intrinsically safe wiring. Do not run any other wires or cables through this conduit, since it may lead to an explosion hazard.

Use standard test equipment only in the non- hazardous area of the fuel station, and approved test equipment for the hazardous areas.

Installation and service must comply with all applicable requirements of the National Fire Protection Association NFPA-30 “Flammable and Combustible Liquids Code”, NFPA-30A “Automotive and Marine Service Station Code”, NFPA-70 “National Electric Code”, federal, state and local codes and any other applicable safety codes and regulations.

Do not perform metal work in a hazardous area. Sparks generated by drilling, tapping and other metal work operations could ignite fuel vapors and flammable liquids, resulting in death, serious personal injury, property loss and damage to you and other persons.

## **CAUTION - SHOCK HAZARD**

Dangerous AC voltages that could cause death or serious personal injury are used to power the equipment. Always disconnect power before working on the equipment. The equipment may have more than one power supply connection point. Disconnect all power, including MCC circuit breaker, before servicing.

## **WARNING - PASSING VEHICLES**

When working in an open area, block off the work area to protect yourself and other persons. Use safety cones or other signaling devices.

## **WARNING**

Substitutions of components could impair intrinsic safety. Use of unauthorized components or equipment will void all warranties associated with this equipment.

## **CAUTION**

Do not attempt to make any repair on the printed circuit boards that reside in the equipment, as this will void all warranties associated with this equipment.

## **WARNING**

The unit is not intended for installation in marine type environments.

## **PROPRIETY NOTICE**

The information contained in this guide is confidential and proprietary to Orpak Systems Ltd. No part of this guide may be disclosed or reproduced in any form without written permission of Orpak Systems Ltd. The information provided in this document is current as of the date of its publication, and it may be changed at any time without notice.

## **DISCLAIMER**

This document is provided for reference only and while every effort has been made to ensure correctness at the time of publication, Orpak Systems Ltd. assumes no responsibility for errors or omissions.

## **FCC COMPLIANCE STATEMENT**

This equipment has been tested and found to comply with the limits for a Class B & C digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- a) Reorient or relocate the receiving antenna.
- b) Increase the separation between the equipment and receiver.
- c) Connect the equipment to an outlet on a circuit different from that to which the receive is connected.
- d) Consult an authorized dealer or service representative for help.

## **FCC WARNING**

Modifications not expressly approved by the manufacturer could void the user authority to operate the equipment under FCC Rules.

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# 1 – Introduction

## General

This manual describes the Site PRIME, which is a part of Gasboy® Fleet Solution. It provides a general description of the product, as well as installation guidelines.

This manual is intended for qualified authorized installers of the Site PRIME and its components.

## Solution Description

The Site PRIME is a fuel control and data acquisition system (see [Figure 1-1](#)). The Site PRIME is enclosed in a self-contained, weather-resistant cabinet designed to be compatible with the forecourt environment. The cabinet is designed to be installed on a wall or any flat surface.

**Figure 1-1: Site PRIME**



Site PRIME is a major component in Gasboy's Fleet Solution for homebase fuel stations. Site PRIME provides the central function of the site controller, and fulfills other essential services in the station such as Vehicle/Driver Identification System, transaction data storage, device control and more. Its user-friendly operating program enables fast and accurate service for the driver in the refueling site.

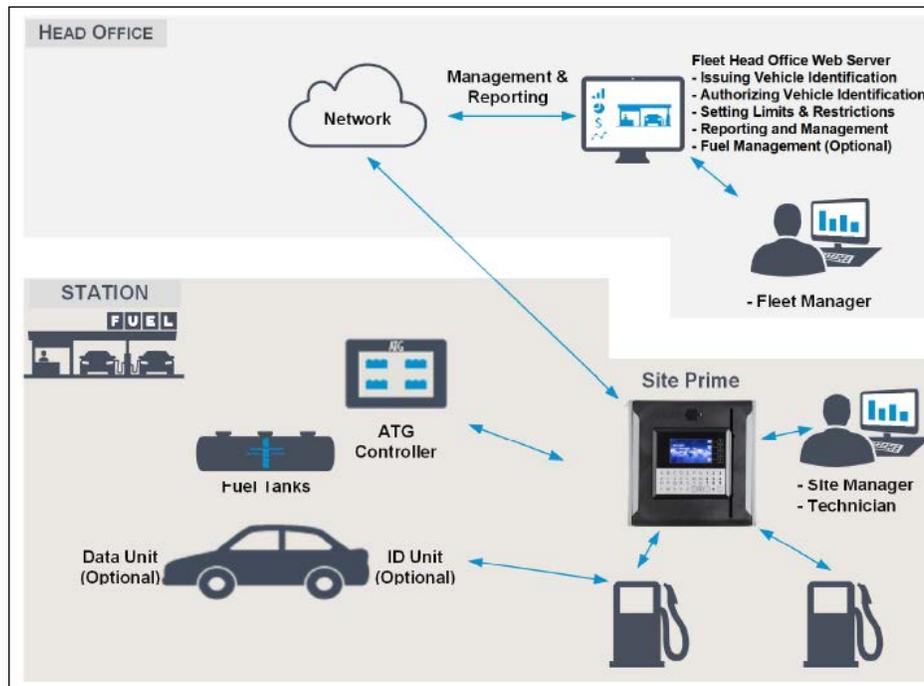
Site PRIME can control up to four mechanical nozzles or up to 32 electronic nozzles. The nozzles may be linked together or standalone.

Site PRIME supports personal refueling identification devices such as Vehicle/Driver Identification Unit (VIU) and FuelOPass.

# System Architecture

Figure 1-2 shows a basic diagram of Site PRIME system architecture.

Figure 1-2: System Architecture



## Documentation Conventions

This manual uses the following conventions:

### WARNING

Warning notes contain information that, unless strictly observed, could result in injury or loss of life.

### **CAUTION**

Caution notes contain information that, unless strictly observed, could result in damage or destruction of the equipment or long-term health hazards to personnel.

## References

This manual provides installation instructions for the Site PRIME system, please refer to the following manuals:

For specific installation and setup instructions not included in this manual, please refer to the following manuals:

- MDE-4815 Wireless Gateway Installation Manual
- MDE-4821FHO Installation and User Manual
- MDE-4851 Fuel Point PLUS Installation and Configuration Manual
- MDE-5414 SiteOmat Setup and Maintenance Manual (P/N 817423748)
- MDE-5415 SiteOmat360 Station Controller User Manual
- Fuel and Drive Mobile Application User Manual (P/N 817400190)

## Abbreviations and Acronyms

<b>Term</b>	<b>Description</b>
ADSL	Asymmetric Digital Subscriber Line
Amps	Amperes
CL	Current Loop
FCC	Federal Communications Commission
FHO	Fleet Head Office
GND	Grounded
IC	Integrated Circuit
MCC	Mains Circuit Control Box
MPI	Mechanical Pump Interface
MWGT	Master Wireless Gateway Terminal
nWGT	nano Wireless Gateway Terminal
PDB	Power Distribution Box
RTC	Real Time Clock
SAM	Security Application Module
TLG	Tank Level Gauging System
UPS	Uninterruptible Power Supply
VIU	Vehicle/Driver Identification Unit
VPN	Virtual Private Network

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## 2 – Important Safety Information

**Notes: 1) Save this Important Safety Information section in a readily accessible location.**

**2) Although DEF is non-flammable, diesel is flammable. Therefore, for DEF cabinets that are attached to diesel dispensers, follow all the notes in this section that pertain to flammable fuels.**

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock or pressure release could occur and cause death or serious injury, if these safe service procedures are not followed.

### Preliminary Precautions

You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain or service this equipment.

### Emergency Total Electrical Shut-Off

The first and most important information you must know is how to stop all fuel flow to the pump/dispenser and island. Locate the switch or circuit breakers that shut off all power to all fueling equipment, dispensing devices, and Submerged Turbine Pumps (STPs).

 <b>WARNING</b>	
	The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you activate these stops, fuel may continue to flow uncontrolled.
	
You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not the console's ALL STOP and PUMP STOP or similar keys.	

### Total Electrical Shut-Off Before Access

Any procedure that requires access to electrical components or the electronics of the dispenser requires total electrical shut off of that unit. Understand the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gasboy equipment.

### Evacuating, Barricading and Shutting Off

Any procedure that requires access to the pump/dispenser or STPs requires the following actions:



- An evacuation of all unauthorized persons and vehicles from the work area
- Use of safety tape, cones or barricades at the affected unit(s)
- A total electrical shut-off of the affected unit(s)

### Read the Manual

Read, understand and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call a Gasboy Authorized Service Contractor or call the Gasboy Support Center at 1-800-444-5529. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

### Follow the Regulations

Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70; *National Electrical Code (NEC)*, Occupational Safety and Health Administration (OSHA) regulations and federal, state, and local codes. All these regulations must be followed. Failure to install, inspect, maintain or service this equipment in accordance with these codes, regulations and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

### Replacement Parts

Use only genuine Gasboy replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gasboy replacement parts could create a safety hazard and violate local regulations.

### Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

#### Alert Symbol



This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety directives that follow this symbol to avoid possible injury or death.

#### Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions below must be followed to prevent death, injury or damage to the equipment:



**DANGER:** Alerts you to a hazard or unsafe practice which will result in death or serious injury.



**WARNING:** Alerts you to a hazard or unsafe practice that could result in death or serious injury.



**CAUTION** with Alert symbol: Designates a hazard or unsafe practice which may result in minor injury.

**CAUTION** without Alert symbol: Designates a hazard or unsafe practice which may result in property or equipment damage.

### Working With Fuels and Electrical Energy

#### Prevent Explosions and Fires

Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

DEF is non-flammable. Therefore, explosion and fire safety warnings do not apply to DEF fluid lines.

## Important Safety Information

### No Open Fire



Open flames from matches, lighters, welding torches or other sources can ignite fuels and their vapors.

### No Sparks - No Smoking



Sparks from starting vehicles, starting or using power tools, burning cigarettes, cigars or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuel vapors. Every time you get out of a vehicle, touch the metal of your vehicle, to discharge any electrostatic charge before you approach the dispenser island.

### Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA Lockout/Tagout procedures. If you are not familiar with this requirement, refer to this information in the service manual and OSHA documentation.

### Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Ensure that grounding connections are properly made. Take care that sealing devices and compounds are in place. Ensure that you do not pinch wires when replacing covers. Follow OSHA Lockout/Tagout requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

### Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth.

#### WARNING

The pump/dispenser contains a chemical known to the State of California to cause cancer.

#### WARNING

The pump/dispenser contains a chemical known to the State of California to cause birth defects or other reproductive harm.



Gilbarco Veeder-Root encourages the recycling of our products. Some products contain electronics, batteries, or other materials that may require special management practices depending on your location. Please refer to your local, state, or country regulations for these requirements.

## In an Emergency

### Inform Emergency Personnel

Compile the following information and inform emergency personnel:

- Location of accident (for example, address, front/back of building, and so on)
- Nature of accident (for example, possible heart attack, run over by car, burns, and so on)
- Age of victim (for example, baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on)
- Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on)

#### WARNING



Gasoline/DEF ingested may cause unconsciousness and burns to internal organs. Do not induce vomiting. Keep airway open. Oxygen may be needed at scene. Seek medical advice immediately.

#### WARNING

DEF generates ammonia gas at higher temperatures. When opening enclosed panels, allow the unit to air out to avoid breathing vapors. If respiratory difficulties develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention.

#### WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs. Keep airway open. Seek medical advice immediately.

#### WARNING



Gasoline/DEF spilled in eyes may cause burns to eye tissue. Irrigate eyes with water for approximately 15 minutes. Seek medical advice immediately.

#### WARNING



Gasoline/DEF spilled on skin may cause burns. Wash area thoroughly with clear water. Seek medical advice immediately.

#### WARNING

DEF is mildly corrosive. Avoid contact with eyes, skin, and clothing. Ensure that eyewash stations and safety showers are close to the work location. Seek medical advice/recommended treatment if DEF spills into eyes.

**IMPORTANT:** Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

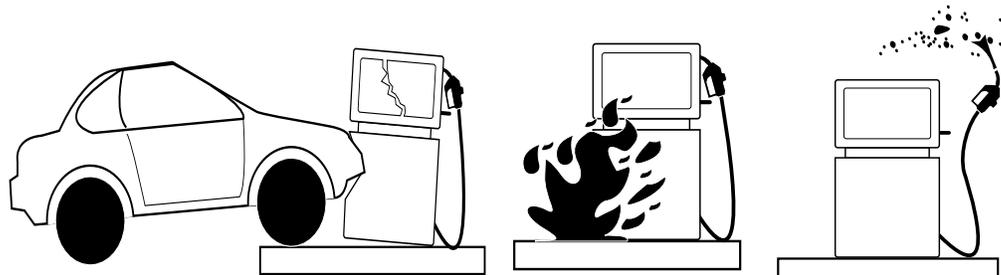
### Lockout/Tagout

Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical, or other energy, but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/Tagout provision for electrical hazards.

## Hazards and Actions

 <b>WARNING</b>	
	<p>Spilled fuels, accidents involving pumps/dispensers, or uncontrolled fuel flow create a serious hazard.</p>
	<p>Fire or explosion may result, causing serious injury or death.</p>
	<p>Follow established emergency procedures.</p>
	<p>DEF is non-flammable. However it can create a slip hazard. Clean up spills promptly.</p>

The following actions are recommended regarding these hazards:



Collision of a Vehicle with Unit

Fire at Island

Fuel Spill

- Do not go near a fuel spill or allow anyone else in the area.
- Use station EMERGENCY CUTOFF immediately. Turn off all system circuit breakers to the island(s).
- Do not use console E-STOP, ALL STOP, and PUMP STOP to shut off power. These keys do not remove AC power and do not always stop product flow.
- Take precautions to avoid igniting fuel. Do not allow starting of vehicles in the area. Do not allow open flames, smoking or power tools in the area.
- Do not expose yourself to hazardous conditions such as fire, spilled fuel or exposed wiring.
- Call emergency numbers.

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## 3 – System Overview

### General

This section provides a detailed description of the Site PRIME system, as well as the available configurations, system specifications, and communication standards.

### System Description

Figure 3-1: System Description



Site PRIME is an innovative product that enables refueling in homebase gas stations for a fleet's authorized vehicles or drivers. Site PRIME electronically locks all dispensers and pumps, ensuring that only appropriately authorized vehicles and plants receive the required fuel. The system also ensures accurate recording of each transaction.

The heart of the homebase station solution is the SiteOmat automation software. SiteOmat runs on an embedded operating system on the controller unit (nOrCU). The controller is an embedded hardware platform designed to survive the harsh gas station environment. It uses a solid-state flash disk and RTC (Real Time Clock) with backup, along with surge suppressors for transient and noise immunity. The system also includes power fail recovery mechanisms.

### Automatic Vehicle Identification

Vehicle Identification is an important option for maximal control and savings on fuel expenditure. The dispenser is authorized to refuel after a positive identification of the vehicle and only while the nozzle is inside the fuel inlet of the identified vehicle. All transaction information is automatically recorded. A combination of vehicle and driver identification is also possible for tight tracking.

## Remote Web Access

Remote Web-based capabilities for monitoring, management, and maintenance are available. A standard PC with an internet browser (Google Chrome/Microsoft Edge) is used for management of the site either locally or remotely (secured). Special management software is not required due to the built-in Web server technology integrated into the station controller and the large variety of communication links supported - both wired and wireless.

## Fleet Head Office

Centralized management is provided by the optional Fleet Head Office server. The Fleet Head Office consolidates the data from multiple sites and generates reports, including exception reports. It also enables control of the limits and restrictions placed on the various fleet vehicles. Furthermore, authorized fleet personnel are able to log in remotely and have full control over the forecourt.

## Restrictions and Limits

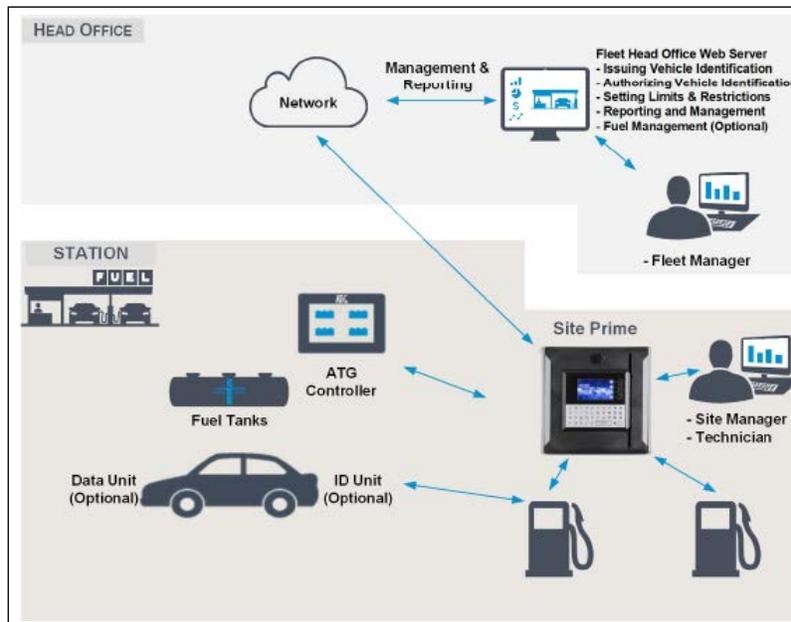
Control of a fleet's fuel expenses can be controlled by defining limits (day, week, or month), maximum number of refueling (per day, week, or month), and setting restrictions (days of the week, fuel type, stations, and time intervals). In case of system configuration for multiple sites, the centralized Fleet Head Office needs to synchronize the data between all sites so that the limits can be applied to a whole system rather than to an individual site. In case of communication failure, the specific site will be able to refuel for a predefined grace period using the most recent limits stored in its database.

## Site PRIME Capabilities for Forecourt Management

Site PRIME provides the following operational features for a comprehensive forecourt management:

- Supports over 50 different types of dispensers used around the world. This product has only been evaluated for use with UL Listed Dispensers.
- Advanced electronic support of mechanical dispensers, enabling pumps with totalizer, preset, and price update.
- Tank Level Gauging System (TLG) available for several brands. This product has only been evaluated for use with UL Listed TLGs.
- Support of a wide variety of communication links: cellular, VPN, satellite, ADSL, and more.

Figure 3-2: Head Office and Station Architecture



## System Workflows

The following are examples of operational workflows for self-service at the homebase station.

### Refueling Scenario with VIU

A driver stops for fuel at the station. The authorization device for the fueling transaction is a Vehicle Identification Unit (VIU) mounted on the vehicle. The driver lifts the nozzle and inserts it in the car fuel inlet.

The VIU information is automatically read and sent to the site controller (Site PRIME) for authentication and approval. Upon approval, the fueling transaction starts. Once the refueling is completed, the driver replaces the nozzle back to the pump. At the end of the transaction, the data is kept internally and transferred to the Fleet Head Office (FHO) for future billing.

### Refueling Scenario with Magnetic Cards

A driver stops for fuel at the station. His authorization device for the fueling transaction is a magnetic card. The client swipes the card through the magnetic card reader on the payment panel.

The magnetic card information is read and sent to the site controller (Site PRIME) for authentication and approval. The client lifts the nozzle and inserts it in the car inlet. On approval, the fueling transaction starts, at the end of which the transaction data is kept internally. The data is transferred to the Fleet Head Office (FHO) for future billing.

The client may add more data to the transaction, by manually entering the information using the payment panel keyboard. After the refueling is completed, the driver replaces the nozzle to pump.

## Main Components

The following provides a description of Site PRIME main sub units.

### Controller Unit (nOrCU)

The Gasboy Controller Unit (nOrCU) is a complete forecourt controller with its own embedded operating system. The unit consists of an embedded hardware platform with a solid state flash storage, Real Time Clock (RTC) with a backup. nOrCU features two separate and isolated networks (TCP/IP over Ethernet). One network links the OrIC Prime system components. The second network is intended for external remote communication (Head Office, 3rd party systems). This network is protected by SSL security. nOrCU includes a built-in server for Web access through an internet browser (see [Figure 3-3](#)).

**Figure 3-3: nOrCU**



### OrPAY1000 (Optional)

The OrPAY1000 terminal is an efficient and advanced user interface with its 4.3-inch multimedia color LCD display, 4 addressable screen keys, and a full alphanumeric vandal proof 40-key keyboard (see [Figure 3-4](#)).

**Figure 3-4: OrPAY1000 Terminal**



### TR500 (Optional)

The TR500 is a compact standalone reader unit for tags intended for vehicle or driver tag identification in gas stations and other applications. The TR500 includes a Security Application Module (SAM) used to handle the encrypted tags. The TR500 is installed within easy reach for customers wishing to refuel, and it transmits information to the station automation system over an Ethernet or RS-485 cable (see [Figure 3-5](#)).

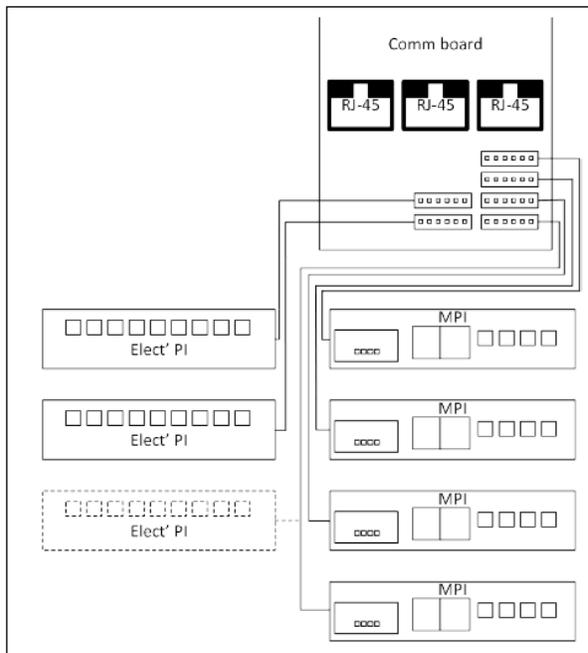
**Figure 3-5: TR500**



### Communication Interfaces

Site PRIME contains seven slots for the various optional communication interfaces. Three slots are intended for electronic pumps only (located on the left side), and four slots are intended for mechanical pumps, 1M modules. The maximum configuration is either three electronic pumps only, or two electronic pumps, and four mechanical pumps (see [Figure 3-6](#)).

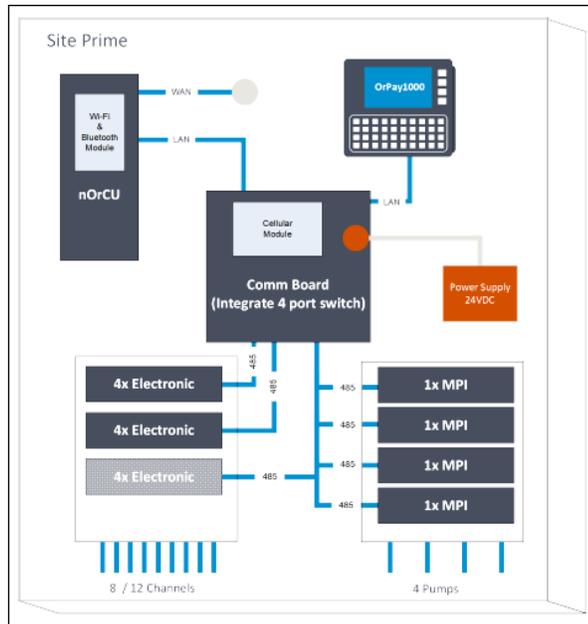
**Figure 3-6: Communication Configuration**



## Internal Configuration

The following is an example of the Site PRIME internal configuration.

**Figure 3-7: Site PRIME Internal Configuration**



## Available Configurations

Site PRIME is available in several configurations, in accordance with its intended use and the components installed.

The following sections describe several configurations and their component devices.

### Site PRIME

Site PRIME is supplied with the controller unit embedded in the cabinet. In this configuration, Site PRIME acts as a full station controller, providing the functions of authorization unit, central forecourt devices controller, link to the Head Office, etc. (See [Figure 3-8](#) on [page 15](#)).

**Figure 3-8: Site PRIME**

## Site PRIME UX

Site PRIME is supplied with the controller unit embedded in the cabinet. In this configuration, Site PRIME acts as a full station controller, providing the functions of authorization unit, central forecourt devices controller, link to the Head Office, etc.

Additionally, the Site PRIME UX has an OrPAY1000 terminal and provides AVI support. (See [Figure 3-9](#)).

**Figure 3-9: Site PRIME UX**

## Site PRIME/Extension Box

Site PRIME is supplied with the controller unit embedded in the cabinet. In this configuration, Site PRIME acts as a full station controller, providing the functions of authorization unit, central forecourt devices controller, link to the Head Office, etc.

Site PRIME supports up to four mechanical pumps. If more pumps are needed, an additional extension box is required. Each extension box can support up to four mechanical pumps.

In the Extension Box Configuration, the controller unit is removed from the basic Site PRIME. This cabinet operates as an authorization terminal and is intended to ease the system operation in large homebase stations. In this configuration, the station includes a main Site PRIME and a second unit in Extension Box Configuration.

The extension box unit is linked to the main Site PRIME, via a CAT5E cable (Ethernet®), and communicates with the controller unit and the Head Office. In this configuration, the controller unit in the Site PRIME is shared by both cabinets.

The extension box is available in the three configurations of the Site PRIME: Site PRIME (EXTN), Site PRIME UX (EXTN), and Site PRIME UX (EXTN, BC).

*Note: The maximum number of devices/pumps on each bus is as follows:*

- *For RS485 -6 devices/pumps*
- *For Current Loop -4 devices/pumps*

*For best communication balance, it is recommended to connect one device/pump on each bus and then loop to the other buses, so that all pumps/devices are divided across the buses. Of course, it is NOT allowed to connect different device types on the same bus (channel).*

## Security and Protection

The transaction activities of the Site PRIME are secured and protected for transmission and authorization activities.

### Network Security

The Ethernet LAN is isolated from the external WAN by the site controller. In case of remote maintenance, a firewall should be applied either at the router level or preferably at the homebase station level.

### Maintenance Security

The Site PRIME maintenance and setup procedures require inserting a user name and password for access. For further information, refer to *MDE-5414 SiteOmat Setup and Maintenance Manual*.

Site PRIME is locked by key to prevent unauthorized access to the bypass switches and controller electronics.

## Housing

The Site PRIME system enclosure is made of a sturdy cabinet. The enclosure is weather-resistant in order to prevent humidity and dust penetration, and to sustain the harsh environment of a homebase station.

The Site PRIME cabinet is locked by key for safety and security. The key should be stored in a well-kept, secure, and safe place.

# Technical Specifications and Standards

The following details the technical specifications, as well as the communication and security standards for the Site PRIME.

## Site PRIME Technical Specifications

The following table provides details on the physical, electrical, and environmental specifications of the Site PRIME.

Parameter	Value
Dimensions (W x H x D)	317mm x 294mm x 177mm (12.4803" x 11.5748" x 6.9685")
Supply Voltage	100 – 240VAC, 50/60 Hz, 65W
Power Consumption	1.65 (max)
Operating Temperature	<ul style="list-style-type: none"> <li>No OrPAY1000: -40°F to +158°F (-40°C to +70°C)</li> <li>OrPAY1000: -40°F to +149°F (-40°C to +65°C)</li> </ul>
Storage Temperature	-22°F to +158°F (-30°C to +70°C) -40°F to +158°F (-40°C to +70°C)
Humidity	80% Non-condensing
Communication Interface	<p><b>Default:</b></p> <ul style="list-style-type: none"> <li>1x Ethernet RJ-45 – GBE for WAN (nOrCU)</li> <li>3x Ethernet RJ-45 100Base-T for internal or external optional devices</li> </ul> <p><b>Optional Modules:</b></p> <ul style="list-style-type: none"> <li>4G LTE Cellular modem with 2G/3G backward compatibility</li> <li>Wi-Fi AP 2.4/5GHz</li> <li>Wireless communication via nWGT (for units without OrPAY1000)</li> <li>Tag Reader via TR500 (for units without OrPAY1000)</li> </ul>
Pump Interface	<p><b>Modules:</b></p> <ul style="list-style-type: none"> <li>4-channel RS485 Module</li> <li>4x Current Loop (2 wires) Module</li> <li>1x Mechanical Pump Interface Module</li> </ul>

## AC/DC MPI Module Specifications

The following table provide details on the specifications of the AC/DC MPI Module.

Parameter	Value
For MPI Module Pump Control Maximum Current Single SSR	<ul style="list-style-type: none"> <li>Open state voltage ratings: AC: 100 - 240V DC: 10 - 32V</li> <li>Open state leakage current: maximum 5mA</li> <li>Close state maximum current: 1.8A</li> </ul>
Power supply output voltage to Pulsar unit	<ul style="list-style-type: none"> <li>12 VDC 100mA max</li> </ul>
Pulsar Input voltage levels	<ul style="list-style-type: none"> <li>Positive "Hi-Logic" voltage: 4V - 32VDC</li> <li>Negative "Hi-Logic" voltage (- 4V) - (- 32V)DC</li> <li>"Low-Logic" voltage (- 0.6V) - (+ 0.6)VDC</li> </ul>
In-use	<ul style="list-style-type: none"> <li>Low voltage DC in-use: Active: 0 - 2 VDC Inactive state: 6V - 32 VDC Open contact</li> <li>High voltage AC in-use: Active: 100 VAC - 240 VAC Inactive: 0 - 10 VAC</li> </ul> <p><i>Note: Do not connect both Low and Hi In-use line simultaneously.</i></p>
Bypass	<ul style="list-style-type: none"> <li>Mechanical bypass switch operates in parallel to SSR</li> <li>Smart Bypass reporting. When SSR is at an open state, voltage on SSR contacts is monitored. <b>Standard:</b> - AC: 100 - 240 V - DC: 10 - 32 V <b>Bypass:</b> AC or DC: 0 - 4 V When SSR goes to close state, the last value before going to close state is reported.</li> </ul>

*Note: When using digital pulsers, the voltage wave peak must tangent to 0 V, otherwise it will not intercept in the decoder or will be counted twice.*

## Communication Standards

Site PRIME communicates over the following standards:

- TCP/IP over Ethernet
- RS-232 link (with the relevant Pump Interface module installed)
- RS-485 link (with the relevant Pump Interface module installed)
- RS-422 link (with the relevant Pump Interface module installed)
- IEEE 802.15.4

*Note: RS-232/485/422 communications unrelated to the Pump Interface (PI) still require the relevant PI module to be installed.*

## 4 – Preliminary Installation Procedures

### General

This section provides preliminary guidelines for Site PRIME. These include:

- Preliminary instructions
- Wiring and wire conduits requirements

### Precautions and Safety Notes

Prior to any installation activities, carefully observe the precautions and safety notes below.

#### **⚠ WARNING**

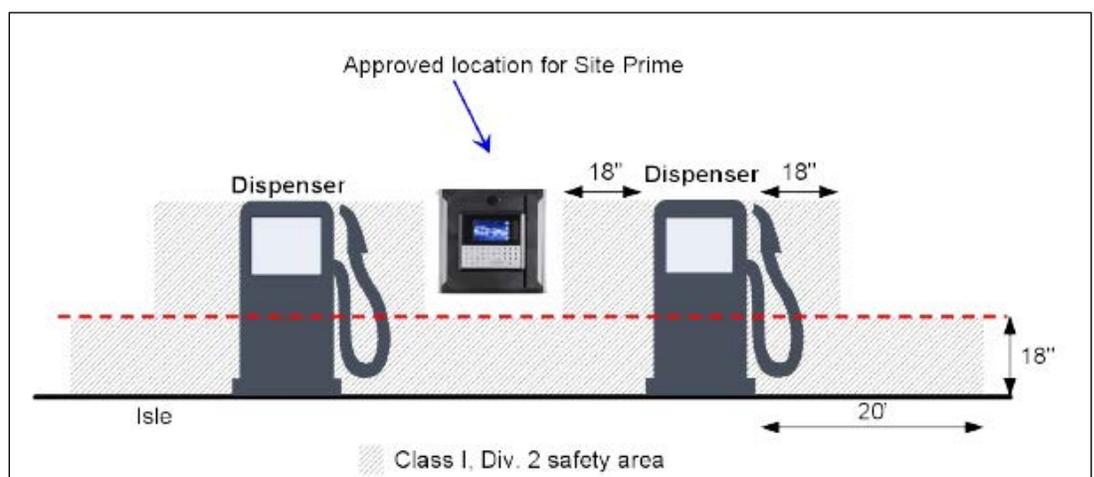
Before installing or servicing equipment, carefully observe the warnings and precautions provided at the beginning of this manual.

The homebase environment is highly flammable and combustible. Therefore, make sure that the installation is performed by experienced personnel, licensed to perform work in a homebase station and capable of implementing all applicable requirements of the National Fire Protection Association NFPA-30 “Flammable and Combustible Liquids Code”, NFPA-30A “Code for Motor Fuel Dispensing Facilities and Repair Garages”, NFPA-70®A “National Electric Code”, federal, state, local codes, and any other applicable safety codes and regulations.

System power may come from more than one source. Disconnect all power sources, including pumps, before attempting to work on the system.

Install Site PRIME in an area in accordance with the safety restrictions. See [Figure 4-1](#).

**Figure 4-1: Installation Control**



The Site PRIME site preparation is the customer's responsibility.

Do not connect power to Site PRIME and other peripherals, including pumps, until complete installation is inspected and certified.

Do not perform any metal work in the hazardous area. Sparks generated by drilling, tapping, and metal work operations could ignite fuel vapors and flammable liquids. This may result in death, serious personal injury, property loss, and damage to you and other persons.

When working in any open area of the homebase station, beware of passing vehicles. Block off the work area to protect yourself and other persons using safety cones or other signaling devices.

## Conduits

To install Site PRIME, the cable layout in the homebase station must be prepared beforehand. This procedure consists of installing conduits within the station, inserting the proper cables, and setting the proper power equipment and sensors.

This section provides the procedures for infrastructure groundwork. These procedures consist of the following:

- Wire conduits installation
- Cables routing within the conduits
- Power equipment setup
- Forecourt equipment wiring

## Requirements

The installation of Site PRIME in the station requires digging and setting several conduits in the station ground. The conduits are required for the routing and protection of the different types of cables used in a homebase station with Site PRIME.

In sites where the infrastructure is already set up, you can only use the existing conduits if they meet the requirements defined below.

Conduits must comply with the following:

- All conduits must be made and installed according to local regulations.
- High-voltage AC and low-voltage DC must NOT be combined in a common conduit, junction box, or wire trough.
- RS-485 or LAN communication must not exceed 330 feet (100 m). Cables must be inserted in a separate low voltage conduit, away from AC wires. Communication range can be extended using 3<sup>rd</sup> party devices.
- RS-232 communication must not exceed 50 feet (15 m). RS-232 communication shielded cable must be inserted in a separate low voltage conduit, away from AC wires. Communication range can be extended using 3<sup>rd</sup> party devices.
- Antenna wires must not exceed 330 feet (100 m) in case the VIU is in use, and 50 feet (15 m) in case the Fuel Ring is used. Antenna wires must be inserted in a separate low voltage conduit, away from AC wires.
- All conduits must be inserted in the Site PRIME enclosure through the openings provided in the bottom panel.

- Do not make any holes in the unit other than the ones available as knockout plates. If you must make holes at locations other than those provided, contact Gasboy Technical Support for approval, by calling 1800-444-5529.
- After completing the installation, all open holes should be resealed.

## Conduits in Site PRIME

The bottom panel in the Site PRIME includes four openings of 3/4" diameter for the insertion of cables into the unit. Connect the wiring through cable glands. The cables and wires are inserted through the conduits according to their types and routed to their sources.

The conduits are used for:

- One conduit is intended for high voltage cables
- One conduit is intended for low voltage cables

*Note: The high voltage conduit is only required if there is a 100-240 V power supply.*

## Required Conduits in the Station

Different types of conduits are necessary for different types of equipment. Therefore, the locations of the conduits should be planned based on the location of the equipment that connects to it.

There are two functional conduits:

- High voltage conduits
- Low voltage conduits

The following conduits are required in the station:

- 1 High voltage conduits
  - AC power for Site PRIME
  - Pump control from pumps to Site PRIME
  - Pump In-use signal from pumps to Site PRIME
- 2 Low voltage conduits
  - Internet line from LAN in office to Site PRIME
  - RS-232 communication line from TLG in office to Site PRIME
  - RS-485/422/C.L.
  - Pulser from pumps to Site PRIME
  - 24V power
- 3 Grounding
  - At least 10 mm<sup>2</sup> Grounding cable to pump chassis
  - At least 10 mm<sup>2</sup> Grounding cable to Site PRIME
  - Grounding cable to TLG – in accordance with TLG manufacturer instructions
- 4 Tank conduit
  - TLG Probe

## Wiring Conduits in Site PRIME

Site PRIME includes four wiring openings, each suited to specific wires, as listed in the below table.

Conduit Type	Type
Low voltage	LAN cables, pump/TLS communication cables, 24V power
High voltage	Pump power cable, all 100-240V cables
High voltage	In-use, control

**Figure 4-2: Conduit Layout for Mechanical Pump**

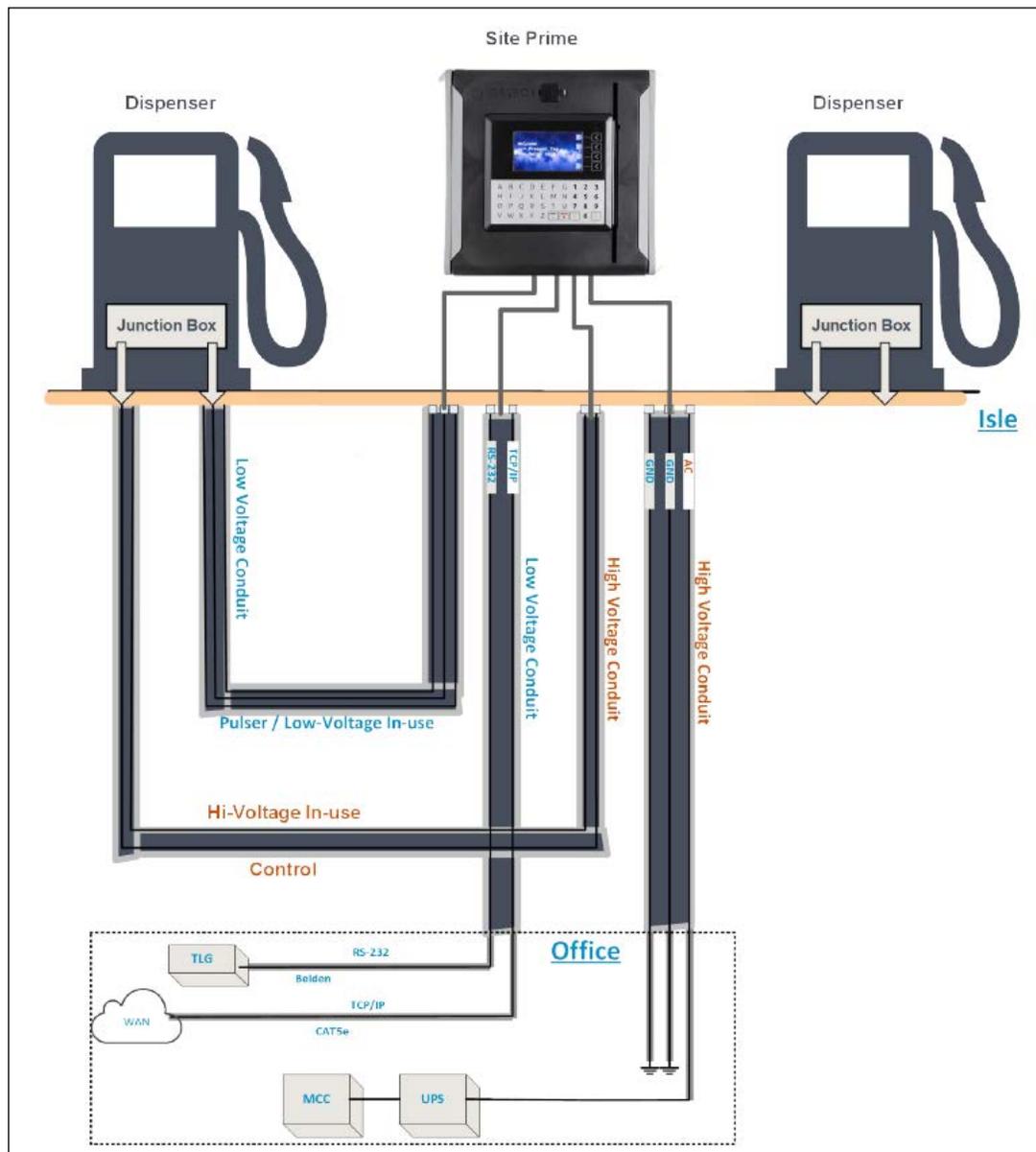
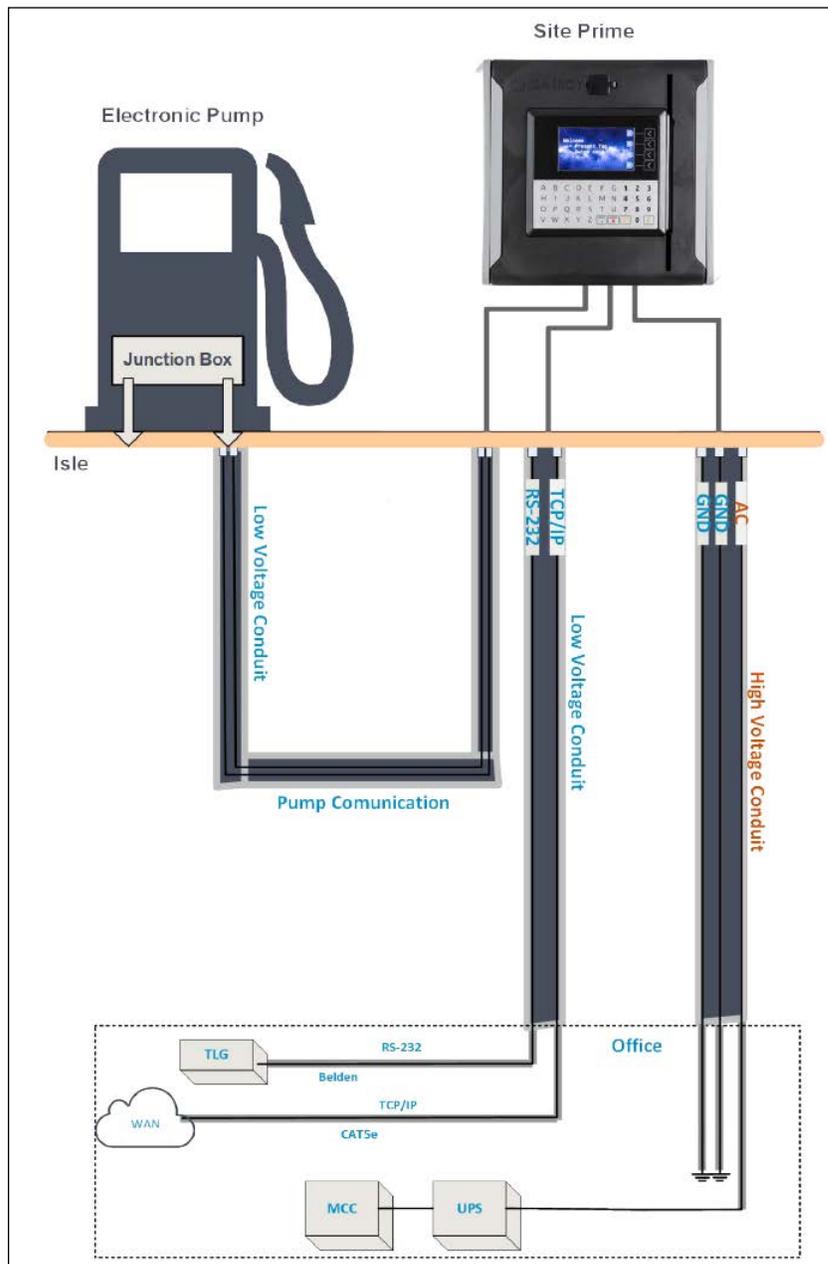


Figure 4-3: Conduit Layout for Electronic Pump



## Installation

To install conduits in the island, proceed as follows:

- 1 Determine the location of the Site PRIME in the station.
- 2 Dig and prepare passageways for the necessary conduits.

### 3 Route the following conduits to the junction boxes:

#### a Low voltage cables junction boxes:

- One conduit to the office (control room)
- One conduit to each pump
- Two conduits to Site PRIME

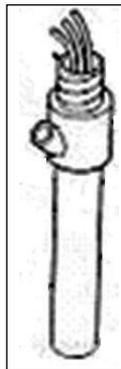
#### b High voltage cables junction box:

- One conduit to the office (control room)
- One conduit to each pump
- Two conduits to Site PRIME

## Sealing

The conduits must be sealed in accordance with NFPA requirements and local regulations, to prevent the passage of gases through conduits, cables, and conductors. Fittings are required wherever volatile liquids or gases are present in the surroundings. See [Figure 4-4](#).

**Figure 4-4: Conduit Fitting**



## Cable Insertion

The following describes the requirements and procedures for the insertion of cables in the conduits.

*Notes: 1) All devices in the system must be connected to the same electric power phase.*

*2) The type of cable needed varies in accordance with the device it connects to. The wire used must be stranded and not a solid core. Select a cable specification in accordance with local environment conditions.*

### **WARNING**

For supply connections, use wires suitable for at least 90°C/194°F. Signal wiring connected in this box must be rated at least 300V.

## Cable Types

The following are the types of cables used for the wiring of the Site PRIME system.

Function	Type
AC Power	
Control to pumps (valves)	Power cable, 3x1.5 mm <sup>2</sup> NYY (14 AWG), in accordance with local standards
In-use signal	
Pulsar	Data communication cable, 300 V RMS, 90°C/194°F, shielded twisted pair, oil resistant, 24 AWG, low capacitance below 60 PF/meter (3.3') similar to Belden 9729 cable
TLG (RS-232)	
LAN	CAT5E, Shielded, 300 V RMS, 90°C/194°F similar to Belden 121700A
GND	Ground cable 0.4" (10.8 mm <sup>2</sup> )

## Power Setup

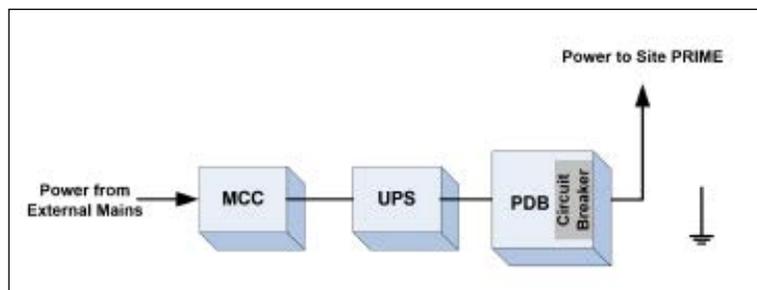
The power equipment must be installed in the main power cabinet. It should include the following:

- Mains Circuit Control Box (MCC)
- Uninterruptible Power Supply (UPS) – Online (“True”) UPS
- Power Distribution Box (PDB)

## Connection Diagram

The following diagram shows the requested connections of the power equipment (See [Figure 4-5](#)).

**Figure 4-5: Power Equipment Connections**



Apart from the power equipment, other components should be connected to the power supply such as the TLG and dispensers.

## Connecting the Power Equipment

Before the Site PRIME can be installed on a surface, all cables and conduits must be prepped on the unit's wall.

To connect the power equipment, proceed as follows:

- a External Mains**
  - Connect Mains power to the Mains Circuit Control Box (MCC)
- b Uninterruptible Power Supply (UPS)**
  - Connect the MCC to the UPS
- c Power Distribution Box (PDB)**
  - Connect the UPS to the Power Distribution Box (PDB)
  - Check the PDB wiring and ensure a separate Mains Circuit Breaker (MCB) for each socket/device that requires power.
  - Wire one 0.4" (10 mm) ground cable from the mains ground connection to the PDB.

*Note: If there is any doubt concerning grounding, ask for a ground test, which must be performed by a qualified electrician.*

## Grounding

Proper system grounding is an extremely important part of the system installation. As with the AC power, the grounds for all system components should return to the same circuit breaker panel. This assures a common ground throughout the system, necessary for protection of the RS-485 data loop circuitry.

Ground for all system devices should be wired to the breaker panel ground bus bar, which in turn should be grounded to a ground rod. A conduit ground does not provide sufficient grounding. It is recommended that the neutral and ground bus bars be bonded together when it is not prohibited by local codes.

*Note: If the Site PRIME is being installed on a pole, all cables and conduits must be run to the bottom of the pole (entering the pole from the base). The cables must be long enough to run through the pole to the Site PRIME.*

# 5 – Site PRIME Installation Procedures

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## General

This section provides the installation procedures for Site PRIME. These procedures include:

- [Installation Guidelines](#)
- [Homebase Station](#) on page 29
- [Mapping the Site](#) on page 30
- [Installing the Site PRIME](#) on page 31
- [Connections to Site PRIME](#) on page 40
- [Pump Interface Modules](#) on page 42

## Installation Guidelines

*Note: Perform a site survey of the station prior to installation.*

Installation procedures and requirements depend, to some extent, on the specific fuel dispenser models and the site layout. Therefore, use the information in this section to develop installation plans for each specific installation. Because installation requirements vary widely from case to case, no installation hardware is supplied by the equipment manufacturer, and installation planners must develop their own requirements.

The customer should provide an installation plan, designed by an authorized engineer, and ensure that it adheres to all local standards. This plan design should reflect the existing electric infrastructure of the site.

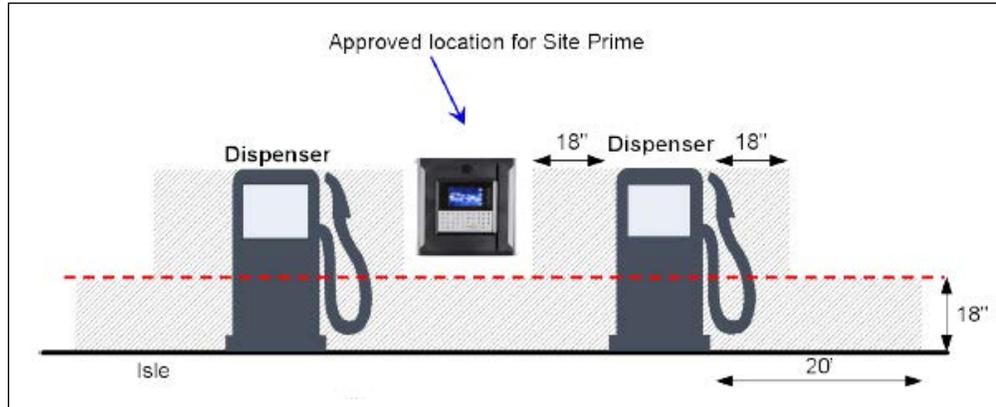
## Precautions and Safety Notes

Prior to actual installation activities, carefully observe the precautions and safety notes detailed in [Precautions and Safety Notes](#) on page 19 and [Requirements](#) on page 20.

## Safety Distances

The following shows the safety distances required for the installation of Site PRIME adjacent to the dispensers. Site PRIME must be installed in a non-hazardous location.

**Figure 5-1: Installation Control Drawing**



When mounting Site PRIME, a minimum clearance of 18 inches (0.5 m) between the unit and any of the pumps or the dispensers must be maintained. This clearance ensures that a safe amount of room is available for the wiring and maintenance of the system.

Site PRIME is designed and approved for installation and use in a convenient location on or near fuel island in the appropriate hazardous (classified) location:

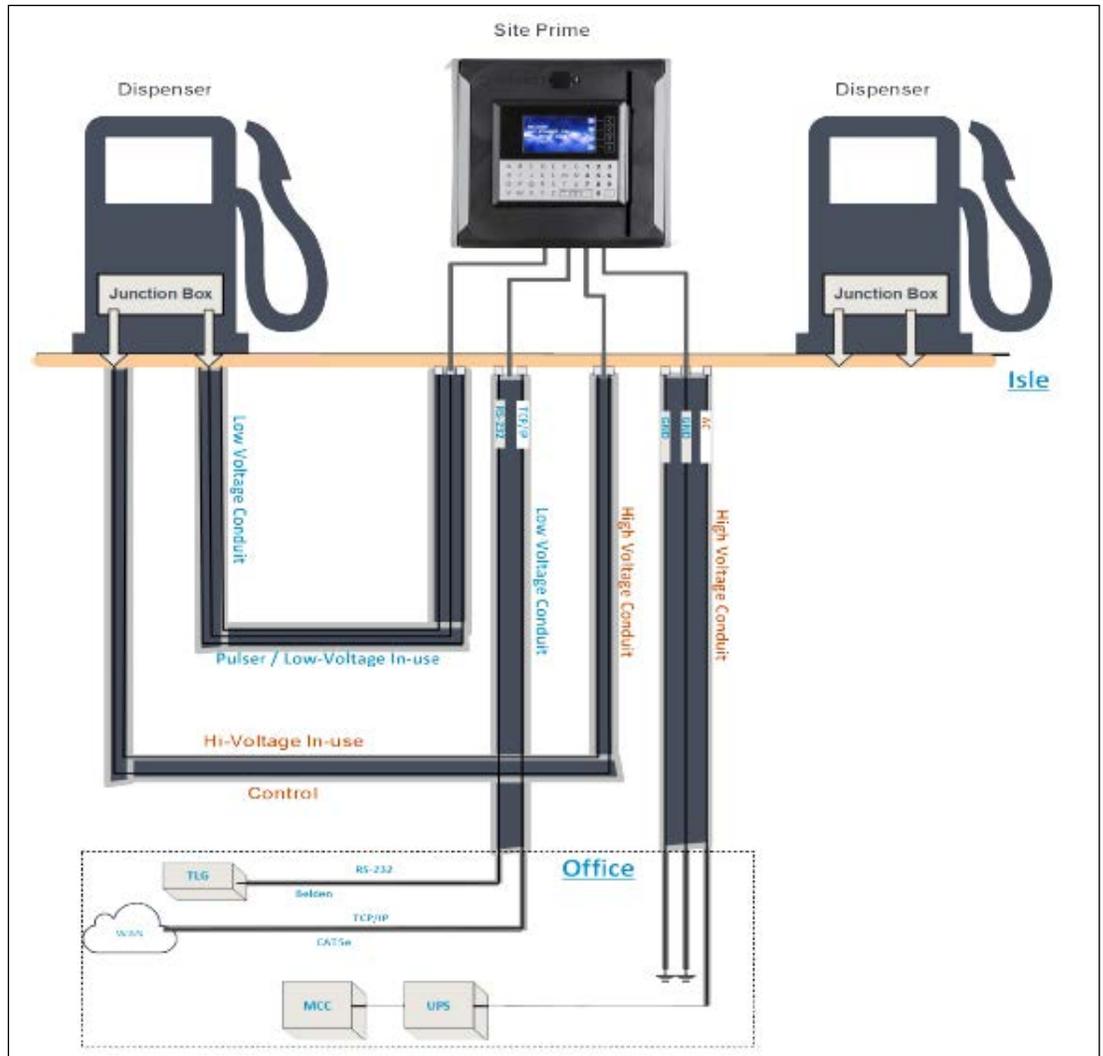
- Where hazardous location is classified as Class 1, Division 2 and does not extend higher than 18 inches (0.5 m) from the surface
- A minimum safety separation of 18 inches (0.5 m) from any nearest pump/dispenser

# Homebase Station

Prior to installation, you are required to obtain an overview of the homebase station functional architecture. This overview is required in order to draw an architecture diagram with all components and their communication links.

The following figure shows a functional diagram of the links within the homebase station.

**Figure 5-2: Homebase Station System Diagram**



## Station Architecture

The homebase station functional architecture consists of the following levels:

- Main Power Cabinet and homebase station forecourt
- Head Office Center

## Main Power Cabinet

The Main Power Cabinet includes the following components:

- Mains Circuit Control Box (MCC)
- Uninterruptible Power Supply (UPS)
- Power Distribution Box (PDB)
- TLG Controller

## Homebase Forecourt

The homebase Forecourt includes the following components:

- Site PRIME
- Dispenser(s), up to four nozzles for each Site PRIME. This product has only been evaluated for use with UL Listed Dispensers.
- One or more underground gas tanks.
- TLG probe for each gas tank. This product has only been evaluated for use with UL Listed TLGs.

## Head Office System (Optional)

The Head Office system consists of a fully integrated management hardware and software tool that supports the homebase stations and small gas stations with their sale management of products including inventory management and reporting.

The Head Office Center is a remote-control center that stores, processes and analyzes all the transactions at the homebase station. The Head Office station provides an integrated retail solution.

# Mapping the Site

The following describes an example of site mapping. This procedure consists of the following steps:

- Locating and Mapping all Objects of the Site
- Assigning Logical Identifications (IDs) to the Devices
- Assigning the Ethernet and serial addresses of devices linked to the network
- Obtaining a functional and physical map of the devices in the site

## Locating and Mapping all Objects of the Site

- Locate the fuel tanks
- Locate the intended position of the Site PRIME
- Draw a basic map of the site with all the objects

## Assigning Logical Identifications (IDs) to the Devices

**a** To each fuel tank:

- Assign the tank sequential number (coordinated with the station manager)
- Assign its fuel code and name
- Assign its TLG Probe (AP) ID

- b** To each dispenser unit:
- Assign an ID to every dispenser name and pump server
  - Assign an ID to every dispenser pump (P)
  - Assign an ID to every pump CPU address, if any
  - Assign an ID to its nozzles (N)
  - Assign to each nozzle the tank (T) ID it is linked to
- c** Assign the Site PRIME ID after installation on a flat surface.

*Note: The map methodology and IDs will be used for setup configuration.*

## Installing the Site PRIME

The Site PRIME is mounted in the safe area of the homebase gas station on a wall or any flat surface up from the ground (panel, billboard) or on a pole (purchased separately), and installed with wall mounting brackets that provide a wall distance of 10 mm. The brackets are attached to four holding padded holes in the inner rear wall of the Site PRIME.

The installation procedure consists of the following general steps:

- Installing Site PRIME on a wall or pole
- Running cables through the conduits to Site PRIME
- Wiring Site PRIME

## Site Preliminary Setup Procedures

To perform the preliminary setup procedures:

- 1** Determine where the Site PRIME will be installed.
- 2** Insert the cable glands into the Site PRIME.
- 3** Run cable conduits for each type of cable to the determined location:
  - One High Voltage conduit from the dispenser
  - One Low Voltage conduit from the dispenser
  - One Low Voltage conduit from the office
  - One High Voltage conduit from the Mains Distribution Box
- 4** Run the cable conduits to the hole.

The following sections describe in detail how to install Site PRIME in different scenarios.

## Support Rails Installation Procedure

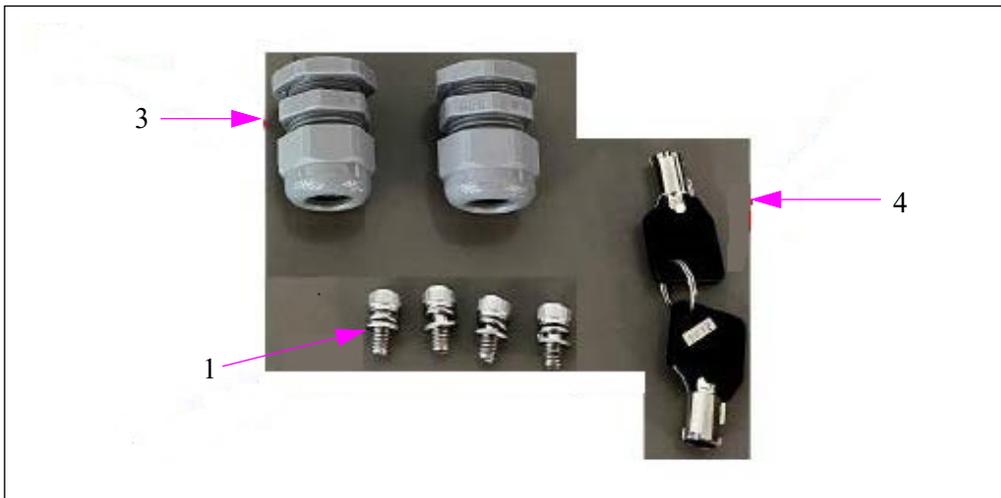
The table below lists the assembly parts required for the installation of the Site PRIME support rails (see [Figure 5-3](#)).

Item Number	Description	Quantity
1	SCREW, M6x12 SST + 2 WASHERS	4
2	MID RANGE WALL MOUNTING RAIL	2
3	CABLE GLAND, NYLON, EG-16, KSS	2
4	Unit Keys	2

**Figure 5-3: Dimensions on the Wall**



**Figure 5-4: Support Rails Assembly Parts**



To install the unit, proceed as follows:

- 1 Place one rail on the top pair of holes and fasten into place with 2xM6x12 screws using a 5mm Hex (Allen) Key (see [Figure 5-5](#)).

**Figure 5-5: Top Rail**



- 2 Place the second rail on the bottom pair of holes and fasten into place with 2x M6x12 screws using a 5mm Hex (Allen) Key. (see [Figure 5-6](#)):

**Figure 5-6: Both Rails**



## Cable Gland Insertion

To insert the cable glands to the Site PRIME, proceed as follows:

*Note: 1) It is recommended to connect the cable glands before installing the Site PRIME on the wall.*

*2) Place the Site PRIME on a stable and level surface before proceeding.*

- 1 Select the knockout openings for the installation and open them using a hammer and large screwdriver (see [Figure 5-7](#) and [Figure 5-8](#)):

**Figure 5-7: Knocking Out Using Hammer**



**Figure 5-8: Knocked Out Opening**



- 2 Insert a cable gland into each opened knockout opening (see [Figure 5-9](#) and [Figure 5-10](#)).

**Figure 5-9: Cable Gland Outside View**



**Figure 5-10: Cable Gland Inside View**



- 3 Fasten the cable gland securely with the appropriate tools to ensure a proper seal (see [Figure 5-11](#) ).

**Figure 5-11: Cable Gland Fastening**





To perform the installation, proceed as follows:

- 1 Use the drill template provided with the product to mark the location of the four holes for drilling.
- 2 Drill four holes in the installation locations and insert four wall anchors (or equivalent) in the holes.
- 3 Set the Site PRIME on the location so that the installation holes on the rails fit with the anchors.
- 4 Secure the Site PRIME. Verify that the Site PRIME enclosure is firmly held.

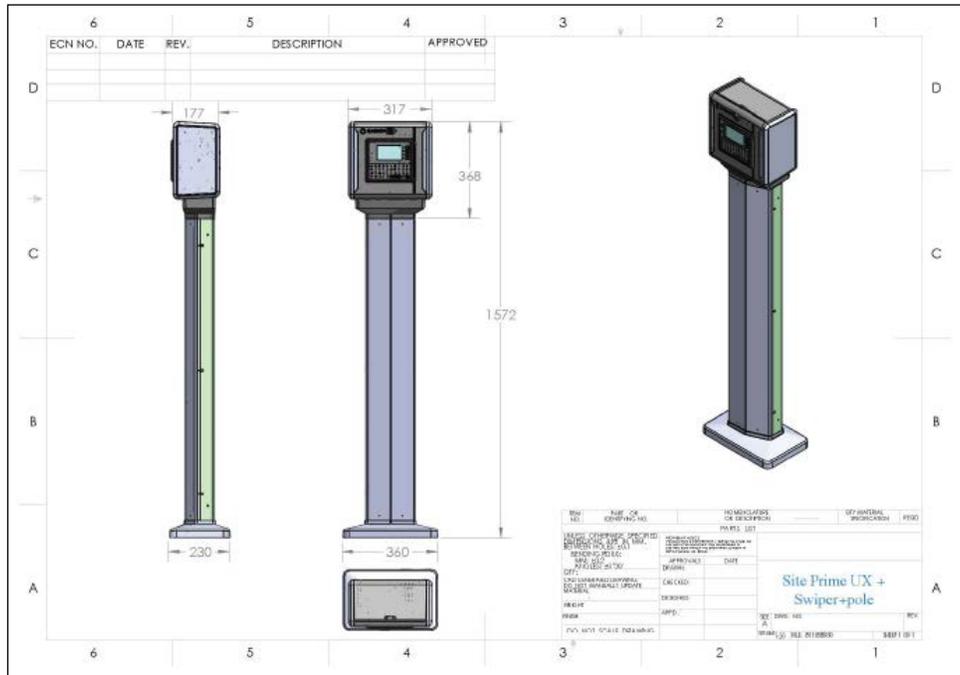
**Figure 5-13: Site PRIME Installed on Wall**



## Installation Procedure on the Pole

The following diagram details the dimensions of the Site PRIME and the pole.

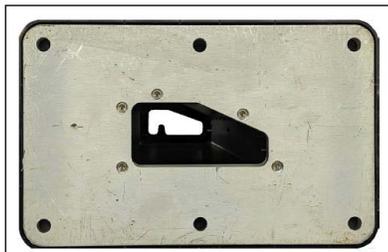
**Figure 5-14: Dimensions on the Pole**



To perform the installation, proceed as follows:

- 1 Secure the base of the pole to the column with the five Allen M6 screws provided.

**Figure 5-15: Base Secured to Column**



- 2 On the installation surface, mark the location of the holes for drilling.
- 3 Drill the holes in the installation locations and insert the screw anchors (or equivalent) in the holes. Ensure that the screw anchors are appropriate for the diameter of the holes in the base of the pole. Line the base of the pole up with the holes and secure it to the surface.

- 4 Apply the rosette cover.

**Figure 5-16: Rosette Cover**



- 5 Place the cable trough provided onto the pole and secure it with the provided allen M6 screws.

**Figure 5-17: Cable Trough**



- 6 After cables have been inserted through the cable glands, place the controller on the cable trough and securely install it with the provided screws (see [Figure 5-18](#)).

**Figure 5-18: Site PRIME Secured to Cable Trough**

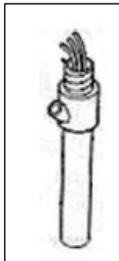


- 7 Close the pole cover with the 6 flat screws provided (3 on each side).

## Sealing Conduits

The conduits must be sealed in accordance with NFPA requirements and local regulations, to prevent the passage of gases through conduits, cables, and conductors. Fittings are required wherever volatile liquids or gases are present in the surroundings (see [Figure 5-19](#)).

**Figure 5-19: Conduit Fitting**



## Connections to Site PRIME

### **WARNING**

*Do not perform any electrical work, maintenance, or repairs to the product when it is connected to power. Before performing any work on the product, disconnect it from the main power supply.*

- Notes:*
- 1) Ensure that the cable glands are securely tightened to the cables running through them in order to ensure that they are properly sealed.
  - 2) In order to perform the wiring, the protective cover over the high voltage area needs to be removed and replaced once the work is complete.

The electrical and communication connections should be made as follows:

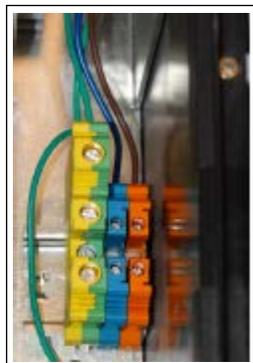
- 1 Designate an opening for the power supply and other openings for the high voltage, the pumps, the low voltage, and the communication cables.

**Figure 5-20: High Voltage Area and Low Voltage & Communication Area**



- 2 High voltage cables and electrical wires must be placed to the right.
- 3 Low voltage cables, wires, and communication cables must be placed to the left.

**Figure 5-21: AC Power Supply Connected to GND/Neutral/Line**



The connections in the [Figure 5-21](#) are as follows:

Version	Input Power Range	T.B Yellow/Green (1)	T.B Blue (2)	T.B Orange (3)
Site PRIME (including UX)	110-240VAC	GND/Earth	Neutral (0)	Line (~)
PumpTop PRIME	110-240VAC	GND/Earth	Neutral (0)	Line (~)

# Pump Interface Modules

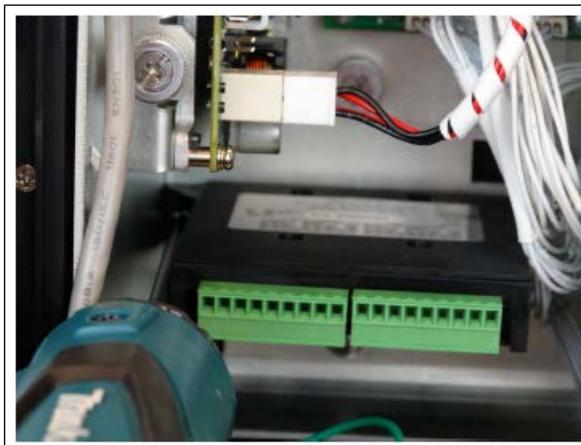
To install the pump interface modules, proceed as follows:

- 1 Wire the connections to and from the modules before attaching the module to the Site PRIME.
- 2 The connections to the modules are made with the designated connectors for each modules.
- 3 To attach the modules, slide the module against the anchor in the designated area, perpendicular to the main plate, and secure the opposite side of the module with a screw, through the fastening point. The orientation of the fastening point depends on the type of pump module being installed. (See [Figure 5-22](#) and [Figure 5-23](#)).

**Figure 5-22: Fastening Point of the Mechanical Pump Module on the Right**



**Figure 5-23: Fastening Point of the Electronic Pump Module on the Left**



The following sections describes the various pump modules available and how to wire them.

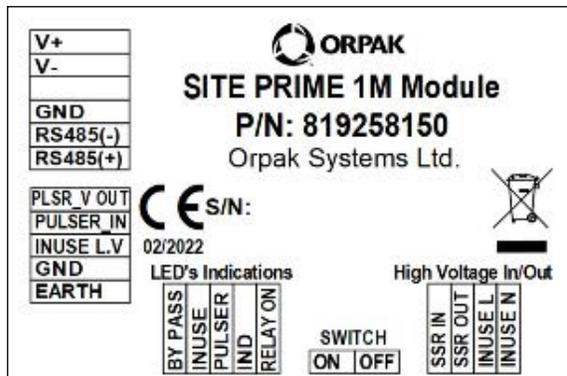
## Site PRIME 1M Module

The 1M Module is a pump module designed for mechanical pumps. See [Figure 5-24](#), [Figure 5-25](#).

**Figure 5-24: 1M Module**



**Figure 5-25: 1M Module Wiring Connections**



### 1M Module - LED Indicators

The following table describes the various LED indicators on the 1M Module and their meaning. A legend below the tables explains the symbols and their meaning.

Indicator Meaning	LED				
	BYPASS	INUSE	PULSER	IND	RELAY ON
A bypass state is detected	●				
In-use input is active		●			
Pulses are counted			☀		
Power is on and working properly				●	
SSR Relay is switched to close state					●
● LED On, ☀ LEDFlashing					

A load must be applied to the SSR in & out in order for the unit to work.

Without load, the unit indicates that it is in Bypass mode (bypass LED is on) and the controller will consider the pump to be offline.

### **⚠ WARNING**

*For single SSR output of an MPI module, do not exceed 1.8 amps. This is the maximum current allowed when connecting load.*

*For more information, see table in [AC/DC MPI Module Specifications](#) on [page 18](#).*

## Electronic Pump Modules

The Site PRIME requires various pump modules that correspond with different electronic pumps it is compatible with.

**Figure 5-26: Electronic Pump Module**



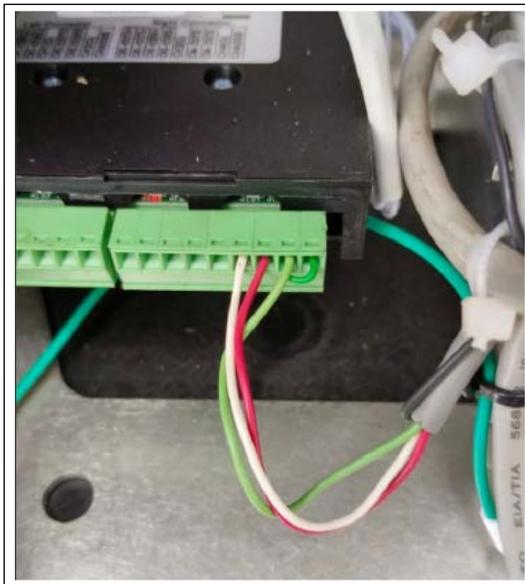
## Electronic Pump Modules Connections

The following table describes the various electronic pump modules compatible with Site PRIME and their connections:

Module Description		1	2	3	4	5	6	7	8	9
4 x RS485 Module	Left Connector	CH1 (+)	CH1 (-)	CH1 (G)	N.C	CH2 (+)	CH2 (-)	CH2 (G)	N.C	Chassis
	Right Connector	CH3 (+)	CH3 (-)	CH3 (G)	N.C	CH4 (+)	CH4 (-)	CH4 (G)	N.C	Chassis
4 x C. LOOP Module	Left Connector	CH1 (-)	CH1 (+)	CH1 (G)	N.C	CH2 (-)	CH2 (+)	CH2 (G)	N.C	Chassis
	Right Connector	CH3 (-)	CH3 (+)	CH3 (G)	N.C	CH4 (-)	CH4 (+)	CH4 (G)	N.C	Chassis
2 x RS422 + 2 x RS232 Module (see note below)	Left Connector	CH1-422 (TX+)	CH1-422 (TX-)	CH1-422 (RX+)	CH1-422 (RX-)	CH1 (G)	CH2-232 (TX)	CH2-232 (RX)	CH2 (G)	Chassis
	Right Connector	CH3-422 (TX+)	CH3-422 (TX-)	CH3-422 (RX+)	CH3-422 (RX-)	CH3 (G)	CH4-232 (TX)	CH4-232 (RX)	CH4 (G)	Chassis

*Note: In case an RS232 device is connected to the RS422/232 module, the “chassis” pin must be connected to the GND pin on the green connector (see [Figure 5-27](#)).*

**Figure 5-27: RS232 Device Connected to RS422/232 Module**



# Post-Installation Checklist

After completing the installation procedure, carefully inspect the connection between the Site PRIME and the external power mains and the data sources. In particular, pay attention to the following:

- 1** Ensure that the wiring is correct.
  - a** Is all of the wiring inserted within metal conduits?
  - b** Is the AC and DC wiring inserted in separate conduits, troughs, etc.?
  - c** Are the systems and peripheral equipment powered on a separate dedicated breaker?
  - d** Is the AC power for the systems and pumps on the same phase in the breaker panel?
  - e** Is the system grounded properly?
  - f** Is the correct wire gauge installed?
  - g** Are the cables correctly routed in the station?
  - h** Are the communication lines under the maximum allowable distance?
    - LAN: 330 feet (100 m)
    - RS-232: 50 feet (15 m)
    - RS-485: 330 feet (100 m)
    - Antenna wire:
      - 330 feet (100 m) for VIU
      - 50 feet (15 m) for Fuel Ring
- 2** Clean dirt and wire remnants.
- 3** Ensure that the power supply setup jumpers are properly set before applying power to the Site PRIME.

In case, problems are detected after installation or during operation, repeat the post-installation checks listed above.

## PRIME Add-Ons

The following sections describe the assembly procedures for all the available PRIME Add-Ons. These add-ons need to be defined properly in the relevant software.

Each transmitting add-on has a different FCC/IC approval. A PRIME unit with a transmitting unit installed from the production line will have the FCC/IC number printed on it.

All add-ons require adding an FCC/IC label to the PRIME main label. After each installation, add the Add-On FCC/IC label in one of the available spaces on the product.

**Figure 5-28: FCC/IC Label on the Product Label**



## Cellular Modem Module

The Cellular Modem Module is a 4G LTE Cellular modem (with 2G/3G backward compatibility), that allows communication between the controller and the HO. The Cellular Modem Module Assembly (M15778B504) is provided with the following assembly kit components (see [Figure 5-29](#) on page 48, [Figure 5-30](#) on page 48, [Figure 5-31](#) on page 48).

Item No.	Description	Quantity
1	Cellular Antennas	1
2	Cellular Modem Module	1
3	SCREW. M2x6, PAN HD PH	2
	WASHER, SPRING, M2	2
	WASHER, FLAT, M2	2
4	Screw, M4x8 SST+2 Washers	2
5	Antenna shelf	1
6	Cable tie	2
7	Harness 2x USB	1
8	Harness USB cover	1
9	Screw M3x20 PAN HD	1
10	FCC/IC Label	1

Figure 5-29: Cellular Modem Module Assembly Parts (1-3)

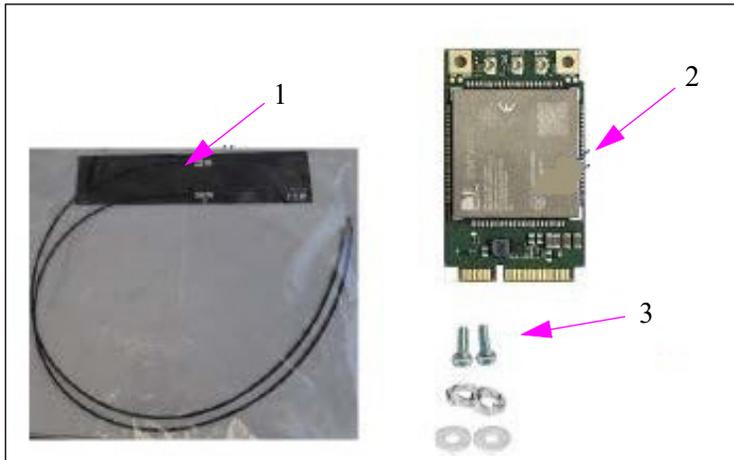


Figure 5-30: Cellular Modem Module Assembly Parts (4-5)

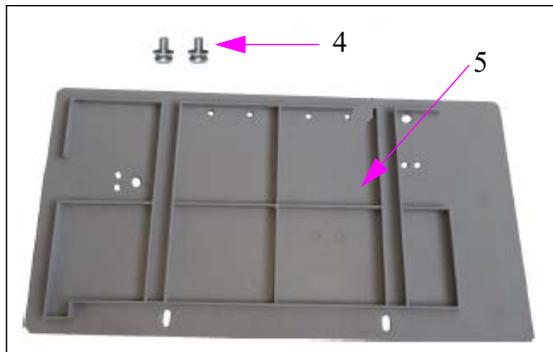


Figure 5-31: Cellular Modem Module Assembly Parts (6-9)

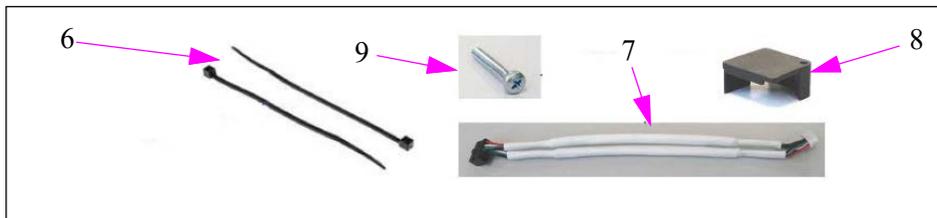


Figure 5-32: Cellular Modem Module FCC/IC Label (10)



To install the Cellular Modem Module, proceed as follows:

- 1 Turn the main power switch to the **OFF** position (See [Figure 5-33](#)).

**Figure 5-33: Main Power Switch-OFF**



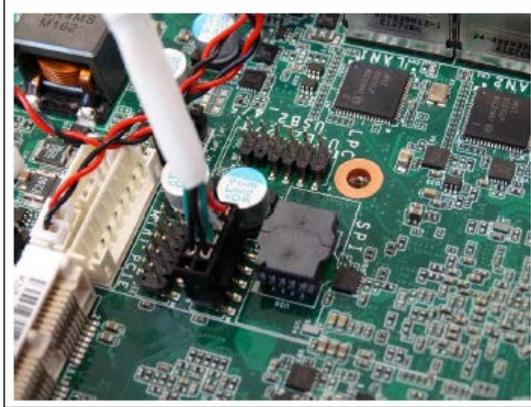
- 2 Disconnect and extract the nOrCU and the CommBoard bracket (see [Figure 5-34](#)). Disassemble the three captive screws (marked with yellow arrows) and disassemble the power harness connector (marked by the green arrow). Cut the cable ties (marked by the orange arrows).

**Figure 5-34: nOrCU Connection**



- 3 Connect the USB cable to the USB connector on the nOrCU (for an illustration of the connector port to connect to, refer to [Figure 5-45](#) on [page 54](#). Cover and fasten the cable with the cable cover, with the M3x20 screw (see [Figure 5-35](#), [Figure 5-36](#), and [Figure 5-37](#)).

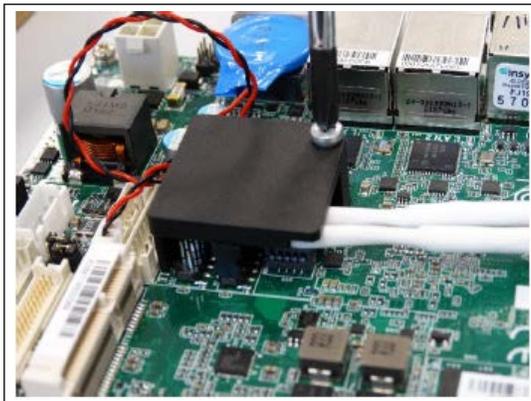
**Figure 5-35: USB Cable Connected to the USB Connector**



**Figure 5-36: USB Cover Placed**

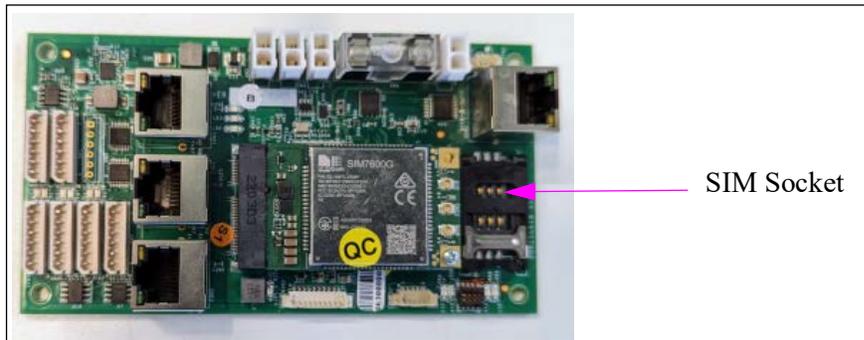


**Figure 5-37: USB Cover Fastened**



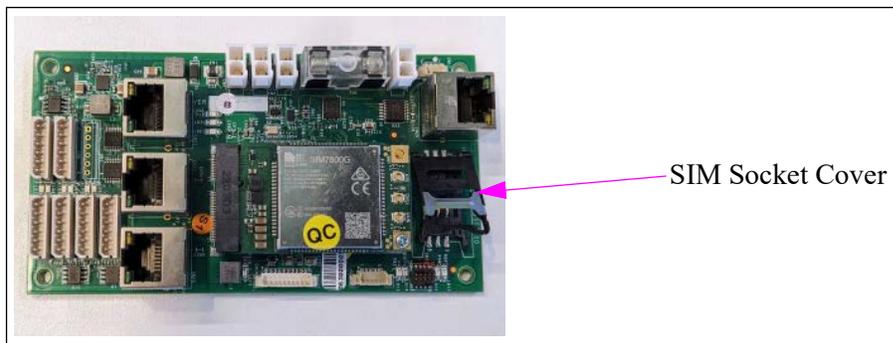
- 4 Install the SIM card in the CommBoard SIM socket.

**Figure 5-38: CommBoard SIM Socket**



- 5 Gently pull up the SIM socket cover to enable insertion.

**Figure 5-39: SIM Socket Cover Raised**



- 6 Insert the SIM card into the SIM socket.

**Figure 5-40: SIM Card in SIM Socket**



- 7 Gently push the SIM socket cover back down to its place.

**Figure 5-41: SIM Socket Cover Replaced**



- 8 Install the antennas on the antenna tray.
  - a Clean the antenna tray with alcohol to remove oil residue and dirt.
  - b Peel the adhesive guard and place the antennas.
  - c Secure the antenna wires with cable tie, and place the antenna wires as follows (see [Figure 5-42](#)).

**Figure 5-42: Antenna Anchor**



- 9 Connect the antennas to the module and fasten the antenna wires with a cable tie.

**Figure 5-43: Antennas Connected to Module**



- 10 Install the module to the CommBoard mPCIe connector. Slide the mPCIe Modem into the mPCIe connector on the CommBoard (marked with an orange arrow), and fasten with the screw and washers from the kit (marked with purple arrow).

**Figure 5-44: Modem on the CommBoard mPCIe Connector**



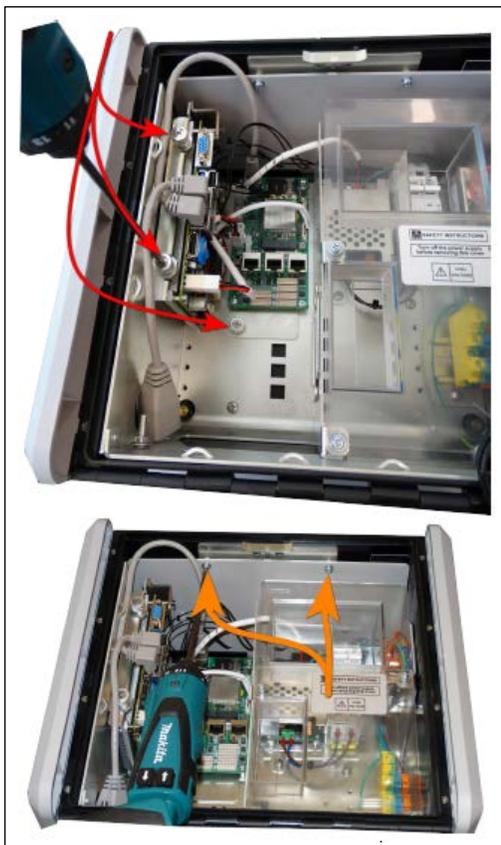
- 11 Install the USB cable to the relevant connector on the CommBoard.

**Figure 5-45: Modem on the CommBoard mPCIe Connector**



- 12 Install the Antenna tray and the nOrCU with the CommBoard bracket: fasten the nOrCU block captive screw (marked with the red arrows), and fasten the Antenna tray screws from the kit (marked with the orange arrows). Close the bracket captive screws and fasten the tray using the M4x8 screws (see [Figure 5-46](#)).

**Figure 5-46: Antenna Tray Installation**



- 13 Reconnect all the disassembled harnesses and turn the main power switch to the ON position.

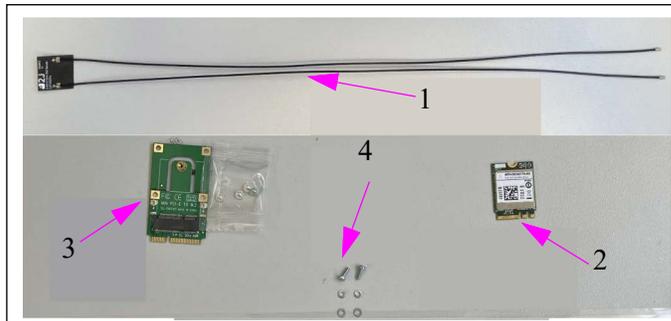
## Wi-Fi + BT Modem Module

The Wi-Fi + BT Modem Module is a Wi-Fi Access Point 2.4/5 GHz that is used for the Fuel and Drive app to connect with the controller. The Wi-Fi + BT Modem Module Assembly Kit (M15778B503) is provided with the following components (see [Figure 5-47](#) and [Figure 5-48](#)).

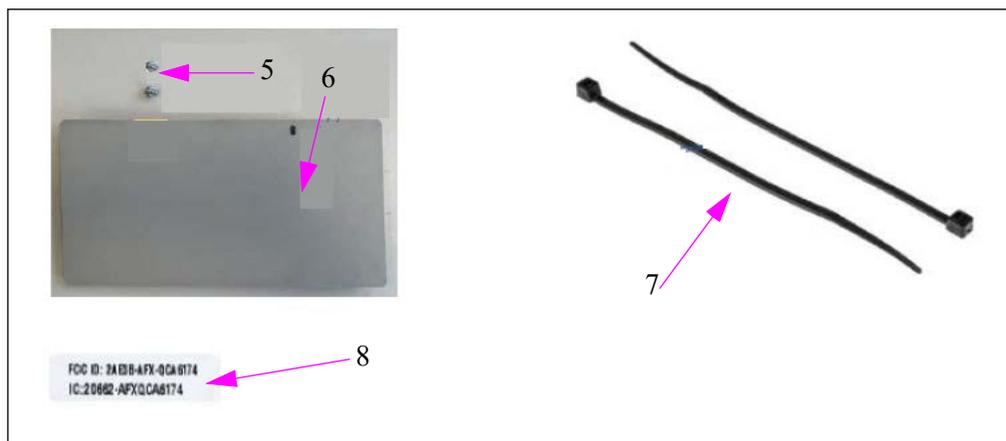
Item No.	Description	Quantity
1	Wi-Fi Antenna set	1
2	Wi-Fi + BT M.2 Module	1
3	mPCIe to M.2 adapter+screws	1
4	SCREW, M2x6, PAN HD PH	2
	WASHER, SPRING, M2	2
	WASHER, FLAT, M2	2
5	Screw, M4x8 SST+2 Washers	2
6	Antenna shelf	1
7	Cable tie	2
8	FCC/IC Label	1

Assembly Kit Number: 819258120  
Gasboy Kit Number: M15778B503

**Figure 5-47: Wi-Fi + BT Modem Module Assembly Parts (1-4)**



**Figure 5-48: Wi-Fi + BT Modem Module Assembly Parts (5-8)**



To install the Wi-Fi + BT Modem Module, proceed as follows:

- 1 Turn the main power switch to OFF position.

**Figure 5-49: Main Power Switch - OFF**



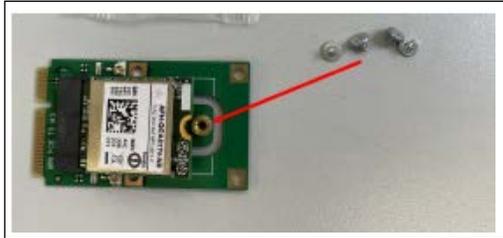
- 2 Disconnect and extract the nOrCU and the CommBoard bracket. Remove the three captive screws (marked with yellow arrows) and disassemble the power harness connector (marked by the green arrow). Cut the cable ties (marked by the orange arrows).

**Figure 5-50: nOrCU Connection**



- 3 To assemble the M.2 modem in the M.2 to mPCIe adapter, insert the M.2 Module into the M.2 socket of the adapter and fasten with the supplied adapter screws.

**Figure 5-51: M.2 Modem in the M.2 to mPCIe Adapter**



- 4 Install the antennas on the antenna tray
  - a Clean the antenna tray with alcohol to remove oil residue and dirt.
  - b Peel the adhesive guard tape and place the antennas 71 Site.
  - c Secure the antenna wires with the antenna anchor and fasten with a cable tie.

**Figure 5-52: Antenna Anchor**



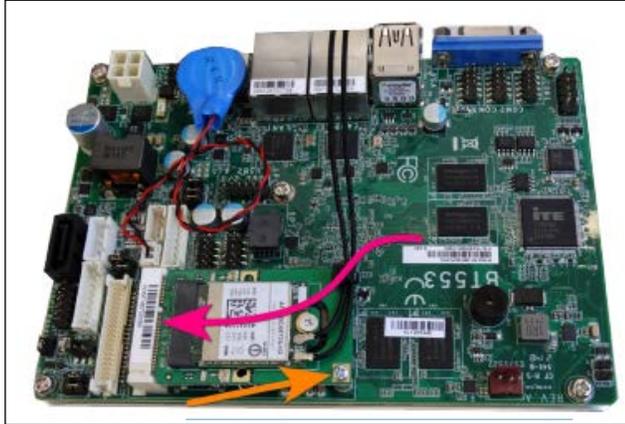
- 5 Connect the antennas to the modem assembly and fasten using a cable tie.

**Figure 5-53: Antennas Fastened With Cable Tie**



- 6 Install the modem assembly to the mPCIe connector on the nOrCU. Slide the mPCIe Wi-Fi set into the mPCIe connector on the nOrCU (marked with a purple arrow), and assemble the screw and washers from the kit (marked with an orange arrow).

**Figure 5-54: Modem Assembly on the mPCIe Connector**



- 7 Install the Antenna tray and the nOrCU with the CommBoard bracket. Fasten the nOrCU block captive screw (marked with the red arrows), and fasten the Antenna tray screws from the kit (marked with the orange arrows) using the M4x8 screws.

**Figure 5-55: Modem Assembly on the mPCIe Connector**



- 8 Reconnect all the disassembled harnesses and turn the main power switch to the ON position.

## Nano Wireless Gateway Terminal (nWGT)

The nWGT Assembly Kit (M15778B505) includes the following assembly kit components (see [Figure 5-56](#) and [Figure 5-57](#) on [page 60](#)).

Item No.	Description	Quantity
1	PCB ASSY.nWGT-Wide	1
2	HARNESS MID RANGE nWGT W POWER	1
3	3 CABLE LAN UL, 60cm, 90 ° C 1	1
4	SCREW # 3x12 PAN HD, TO PLASTIC	4
5	Cable tie	4
6	WASHER M5, EXT. TOOTH LOCK	1
7	NUT, M5	1
8	WASHER FLAT M5 SST DIN-125	1
9	FCC/IC Label	1

**Figure 5-56: nWGT Assembly Parts (1-4)**

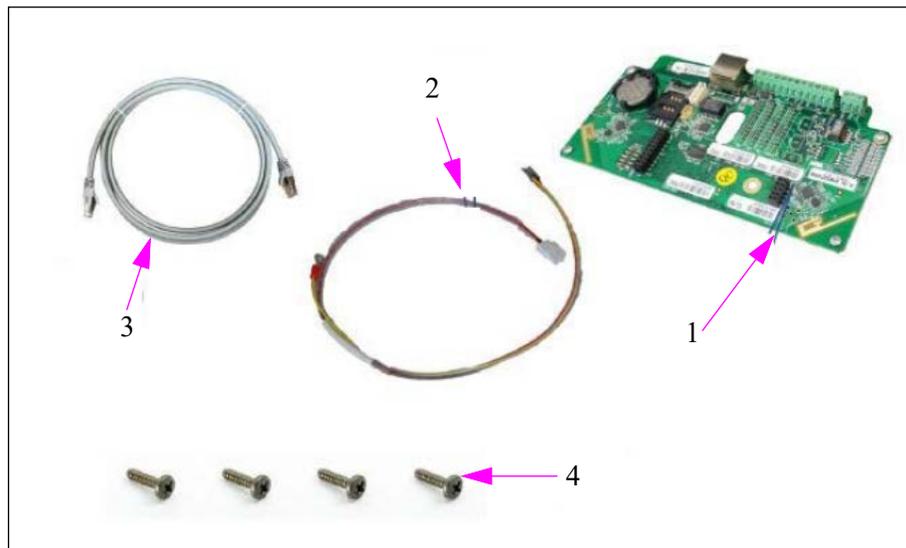
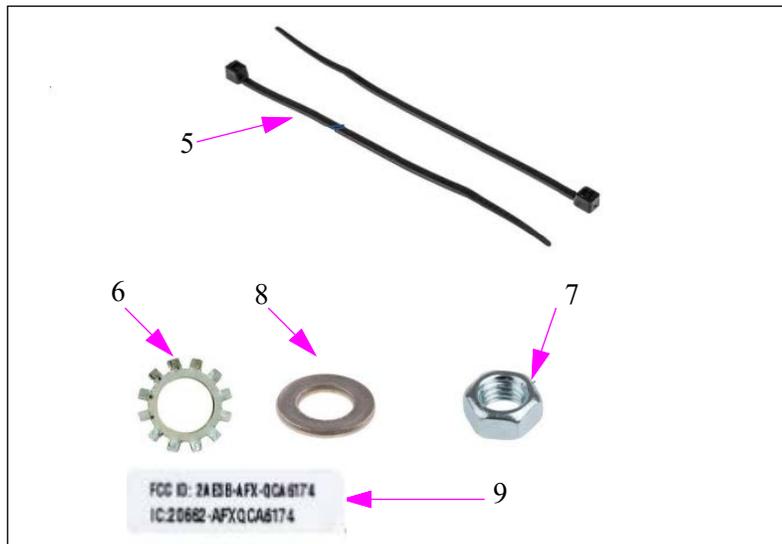


Figure 5-57: nWGT Assembly Parts (5-8) and nWGT FCC/IC Label (9)



To install the nWGT, proceed as follows:

- 1 Turn the main power switch to the **OFF** position.

Figure 5-58: Main Power Switch - OFF



**Figure 5-59: Main Power Switch - OFF**

- 2 Install the nWGT on the Inside door panel, using four 3x12 screws to fasten the unit into place.

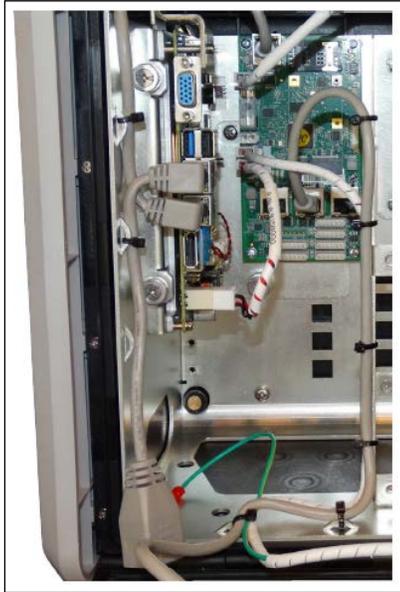
**Figure 5-60: nWGT Installed**

- 3 Connect the 60 cm LAN cable to the nWGT power harness, anchoring the cables to the door with the cable ties. Fasten the GND cable to the GND stud using the M5 set (tooth lock washer, standard washer, and nut).

**Figure 5-61: Cables Connected**

- 4 Connect the power harness and the LAN cable to the CommBoard and asten the cables to the partition wall.

**Figure 5-62: Cables Connected**



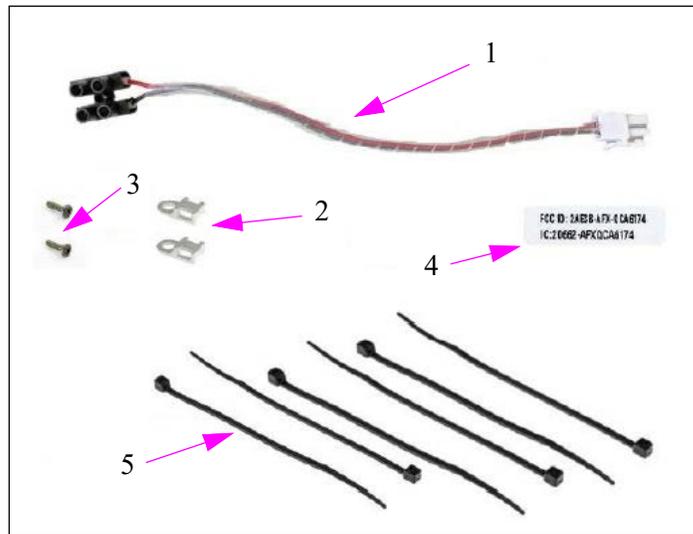
- 5 Turn the main power switch to ON position.

## TR500

The TR500 is provided with the following assembly kit components (Assembly Kit Number: 819258200). See [Figure 5-63](#) and [Figure 5-64](#) on [page 63](#).

Item No.	Description	Quantity
1	HARNESS MID RANGE TR500 POWER	1
2	ANCHOR MOUNT, TA1S8-C	2
3	SCREW # 3x12 PAN HD, TO PLASTIC	2
4	FCC/IC Label	1
5	Cable tie	6

Figure 5-63: TR500 Assembly Parts



To install the TR500, proceed as follows:

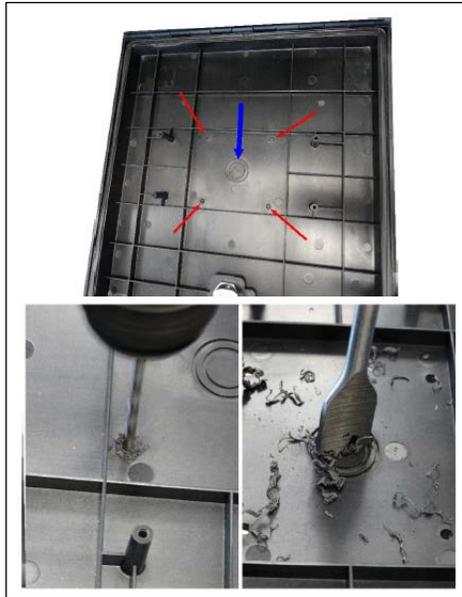
- 1 Turn the main power switch to the **OFF** position.

Figure 5-64: Main Power Switch-OFF



- Using a drill, cut four 3.5-mm holes and a 20-mm hole in the front panel. (See [Figure 5-65](#) and [Figure 5-66](#)).

**Figure 5-65: Drill Locations**

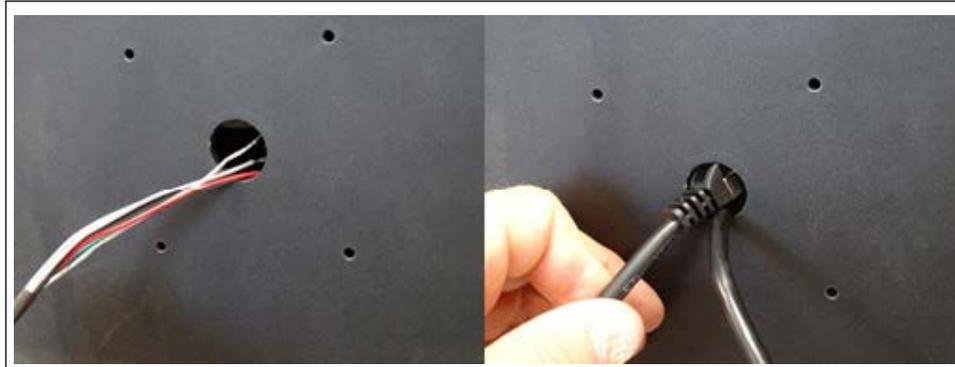


**Figure 5-66: Front Panel with Holes Drilled**



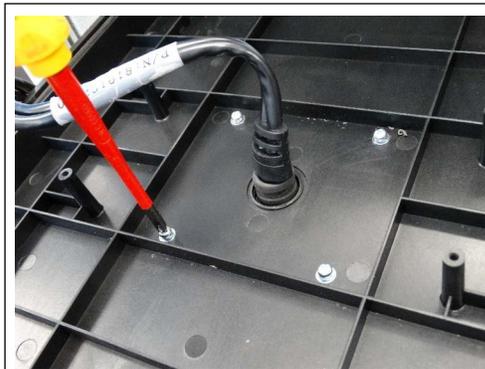
- 3 Pull the TR500 power supply and LAN harness through the 20-mm holes.

**Figure 5-67: Threading Cables**



- 4 Attach the TR500 to the panel and fasten with the four M3 screws supplied with the TR500.

**Figure 5-68: Attaching TR500**



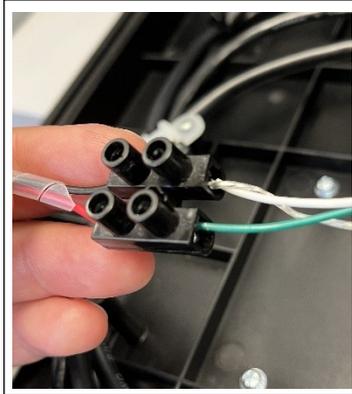
- 5 Anchor the harness to the front panel with the anchors and screws provided with the kit.

**Figure 5-69: Harness Anchored**



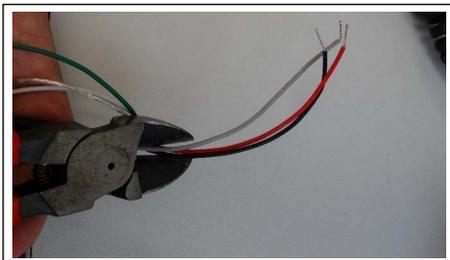
- 6 Connect the TR500 power harness to the kit power harness, Red to Green, and Black to White+Clear. Cut the remaining wires in the TR500 power harness, Red, Black, and Grey.

**Figure 5-70: Connecting to Harness**



- 7 Cut the remaining wires in the TR500 power harness (red, black, and grey).

**Figure 5-71: Cutting the Wires**



- 8 Connect the power harness and the LAN cable to the CommBoard and fasten the cables to the partition wall.

**Figure 5-72: Connected to CommBoard**



- 9 Turn the main power switch to the **ON** position.

**Figure 5-73: Site PRIME With TR500 Turned On**



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# 6 – PRIME Converter Setup

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## General

This section provides instructions for setting up the PRIME Converter. To access the setup site for Site PRIME, proceed as follows:

Open an internet browser (currently only Chrome is supported) and enter the default IP address provided (the default is <https://192.168.1.111>). The Converter Setup homepage appears with a login dialog (see [Figure 6-1](#)).

**Figure 6-1: PRIME Converter Setup Login**



Sign in

http://192.168.1.111

Your connection to this site is not private

Username

Password

Sign in Cancel

To log in, proceed as follows:

- 1 Enter the initial credentials for first login:
  - Username: Admin
  - Password: Admin

- 2 Click **Sign In**. The following screen is displayed.

**Figure 6-2: PRIME Converter Setup Homepage**



- 3 Immediately after the first login, you will be prompted to change your username and password.

The Converter settings page includes the following navigation buttons on the left side of the screen:

Buttons	Description
Home Page	Basic device information
Setup	Main device settings
Software Upload	Uploads configuration files and software / firmware updates.
Status	Displays previous software and firmware updates that were uploaded, if any.
Change Password	Enables the user to change the credentials used to log into the website.
Reset Password	Resets the password for the device in order to reactivate it.
Logout	Logging out of the web site.

# Home Page

The Home page displays current device information (see Figure 1-2, Table 5-1):

Field	Description
Ethernet IP	Ethernet IP address
Ethernet MAC	Ethernet MAC address
SW Version	Software version installed on the device
HW Family	Hardware version installed on the device
Boot Loader Version	Boot Loader Version installed on the device
Pump Interface 1 Version	Pump software version for the PI in Slot 1
Pump Interface 2 Version	Pump software version for the PI in Slot 2
Pump Interface 3 Version	Pump software version for the PI in Slot 3
Location	Location of the Site PRIME
Serial Number	Serial number of the device
Device Key	The current key used for activating the device

*Note: If no module has been connected in the slot for a specific pump (1, 2, or 3), the corresponding Pump Interface 1/2/3 Version field will be blank. Only the details of connected pump modules will be displayed.*

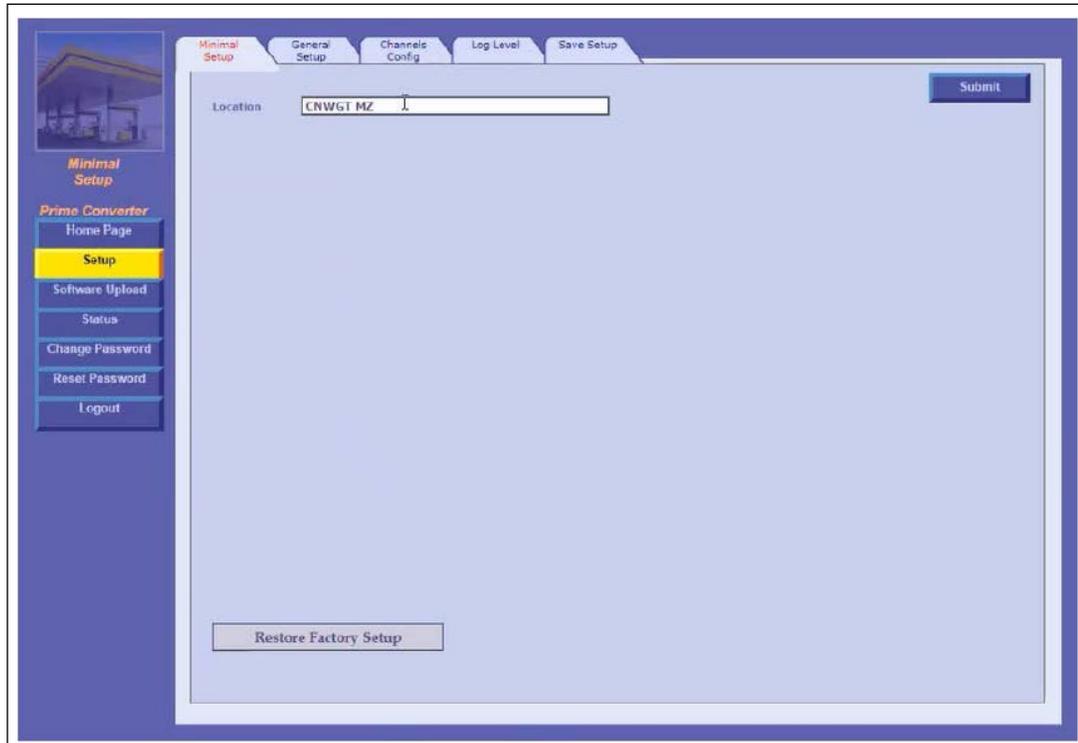
## Setup

The Setup page is comprised of five tabs: Minimal Setup, General Setup, Channels Config, Log Level, and Save Setup. Click on the Setup navigation button to view and define the parameters in each tab.

## Minimal Setup

The Setup page opens with the **Minimal Setup** tab selected as default.

**Figure 6-3: Minimal Setup Tab**



The following actions are available:

- In the Location field, enter a description for the location of the device (optional).
- **Restore Factory Setup** will reset the device to the factory defaults (optional).

### CAUTION

The Restore Factory Setup option should be used only when there is an issue that can't be solved any other way. When clicking this button, all previously defined settings will be overwritten.

- Click **Submit** to save the changes locally.

*Note: Clicking on Submit only saves the configuration temporarily on a local level. To commit the changes permanently, ensure to save everything via the Save Setup tab.*

## General Setup

Click **General Setup** tab. The following screen is displayed.

**Figure 6-4: General Setup Tab**

The following actions are available:

- 1 Define the General Setup fields detailed in the table.
- 2 Click **Submit** to save the changes locally.

*Note: Clicking on Submit only saves the configuration temporarily on a local level. To commit the changes permanently, ensure that everything is saved via the Save Setup tab.*

Field	Description
<b>Ethernet Configuration</b>	
IP Address	Device IP address
Subnet Mask	Subnet Mask address
Gateway	Gateway
DHCP	Not currently available
MAC	MAC address
<b>RTC</b>	
Date (dd/mm/yyyy)	Date
Time (hh:mm:ss)	Time

- Note:* 1) The RTC (Real Time Clock) setting is important when activating converter logging. When activated, the logger will draw the timestamp from this setting.
- 2) Ensure that no pumps at the station are actively fueling before changing the date or time.

## Channels Config

The Channels Config tab is the main screen for configuring the converter. Clicking the Scan Interfaces button at the bottom of the screen automatically identifies and populates the details of all connected modules, and presents them with channel numbers on the left, up to a maximum of 12 channels.

**Figure 6-5: Channels Config Tab**

Chann. #	Host	Destination
1	TCP/IP Port: 3001 Device Name: shlum No Data Timeout: 20	Interface Number: 1 Comm. Type: RS-232 Baud Rate: 9600 Data Bits: 8 Parity: None Stop Bits: 1 Frame Timeout: 0
2	TCP/IP Port: 3002 Device Name: No Data Timeout: 	Interface Number: 2 Comm. Type: None
3	TCP/IP Port: 3003 Device Name: shlum2 No Data Timeout: 70	Interface Number: 3 Comm. Type: RS-232 Baud Rate: 9600

All new cards manufactured today include a built-in classification that is automatically identified during the scan.

*Note:* After clicking the Scan Interfaces button, a confirmation dialog with the following message will appear: "You are about to scan hardware interfaces. Continue?". Click **OK** to proceed with the scanning.

Each channel includes the following fields.

Field	Description
<b>Host</b>	
TCP/IP Port	Host TCP/IP Port. Port numbers can range from 1024 to 56000
Device Name	Device Name (Ideally should reflect the corresponding destination, i.e. "CL" for Current Loop destinations)
No Data Timeout	The controller checks communication at regular intervals, if no communication is detected within the timeout interval, the channel will automatically reset. The setting can range from 50 to 100. If set to 0, the channel will not reset.
<b>Destination</b>	
Interface Number	Channel number between 1-12 (up to 4 per PI)
Comm. Type	Communication protocol for the interface <ul style="list-style-type: none"> <li>• None (if there is no protocol)</li> <li>• RS-232 (electronic PI)</li> <li>• RS-485 (electronic PI)</li> <li>• RS-422 (electronic PI)</li> <li>• Current Loop (electronic PI)</li> <li>• MPI-C Standalone (channel in a single card) (mechanical PI)</li> </ul> RS-232 and RS-422 channels are configured on the same PI -channels 1 and 2 are RS-232 and channels 3 and 4 are RS-422
Baud Rate	
Data Bits	
Parity	Communication Interface details. Refer to the table below for details by pump type.
Stop Bits	
Current Select	This setting is for Current Loop channels only, and specifies the type of current used by the channel. For Wayne type pumps, select 20mA, and for Gilbarco type pumps, select 40mA.
Frame Timeout	Longest pause in milliseconds between received bits before destination interface interprets the pause as the end of one message, and interprets further transmissions as a new message (0 = 4 bytes of silence). If there are problems with the frame timeout, it is recommended to start raising the value gradually (to 1, 3, 5, etc.) and checking each time for improvement. The maximum recommended value is 10.

Pump Type	BaudRate	Data Bits	Parity	Stop Bits
Gasboy	9600	8	None	1
Gilbarco Current Loop: 20mA	5787	8	Even	1
Wayne Current Loop: 40mA	9600	8	Odd	1

After setting the required parameters for the channels, click **Submit** to save the changes locally.

*Note: Clicking on Submit only saves the configuration temporarily on a local level. To commit the changes permanently, make sure to save everything via the Save Setup tab.*

## Log Level

The Log Level tab is required only when logs are needed.

**Figure 6-6: Log Level Tab**

Log Levels: Select Debug information			
Source	Data	Debug	Info
TcpS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TcpC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DIAG	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ADMIN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prime	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Log Level section defines settings for logs that are sent to the provider.

*Note: Please consult with the provider's Customer Services prior to defining the Log Level settings.*

The following actions are available:

- 1 Define the Log Level fields detailed in the table below.
- 2 In the Debug Port Interface drop-down, select the port that the log will be transferred through
  - **None:** Logs are not transferred
  - **Com:** Transfers the logs via RS-232
  - **TCP/IP:** Transfers the logs via LAN connection

**3** Click **Submit** to save the changes locally.

*Note: Clicking on Submit only saves the configuration temporarily on a local level. To commit the changes permanently, make sure to save everything via the Save Setup tab.*

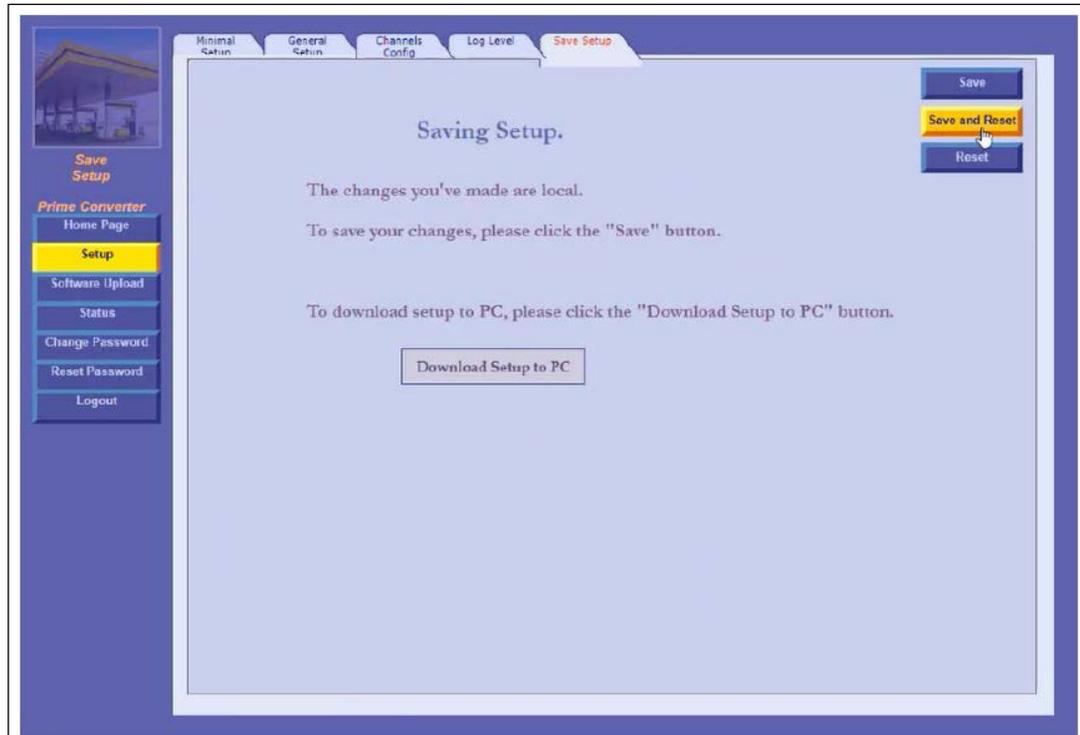
Field	Description
<b>General</b>	
Debug Port Interface	<ul style="list-style-type: none"> <li>• None: Logs are not transferred</li> <li>• Com: Transfers logs via RS-232 (requires connecting a communication cable)</li> <li>• TCP/IP: Transfers logs via LAN</li> <li>• Auto: Transfers logs automatically</li> </ul>
Ethernet Debug Port	Port number. The default is 5000
Secure Channel	
<b>Log Levels: Select Debug Information</b>	
<b>Source</b>	Logs: <ul style="list-style-type: none"> <li>• TcpS</li> <li>• TcpC</li> <li>• DIAG</li> <li>• ADMIN</li> <li>• Prime</li> </ul>
<b>Log Levels</b>	<ul style="list-style-type: none"> <li>• Data (the most common setting is selecting the TcpS &gt; Data checkbox)</li> <li>• Debug</li> <li>• Info</li> </ul>

## Save Setup

After you have completed and submitted all configuration details, you must save all changes in the Save Setup tab in order to write the changes to the flash memory and save the configuration permanently. To save changes, proceed as follows:

- 1 Click **Save Setup** tab. The following screen appears.

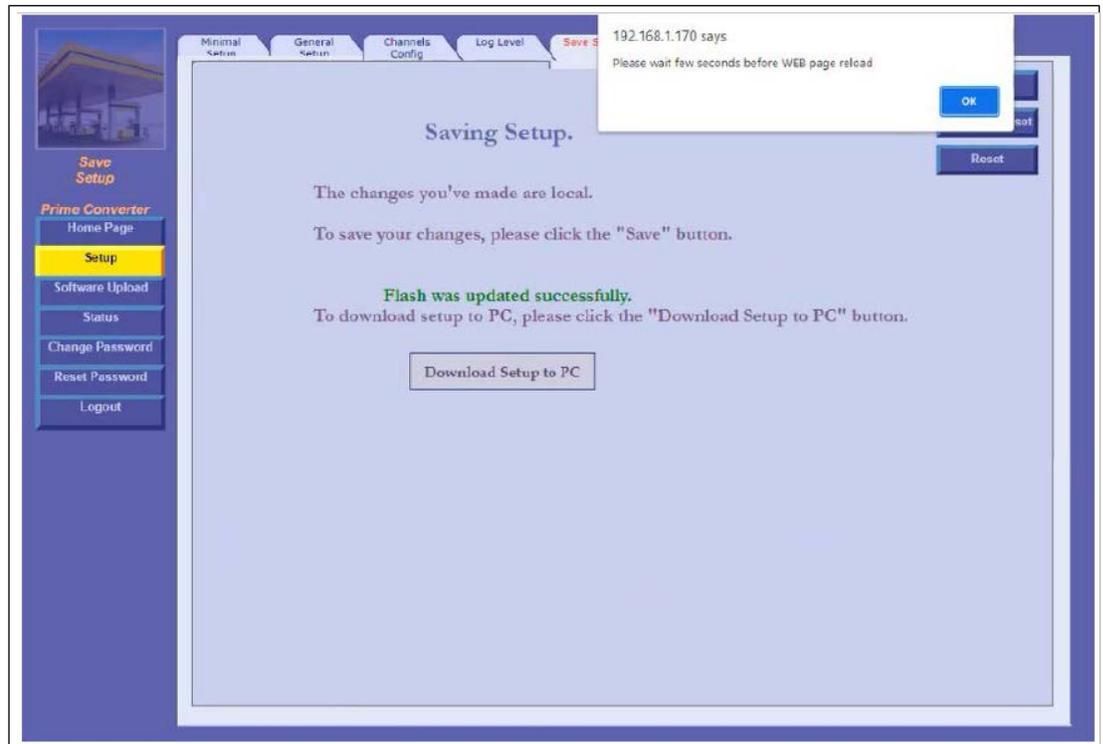
**Figure 6-7: Save Setup Tab**



- 2 Click **Save and Reset**. A confirmation pop-up appears with the message "Save changes and reset the device?".

- Click **OK** to continue. The following dialog appears.

**Figure 6-8: Save Confirmation**



- Click **OK** to complete the save process. After a few seconds, you will be logged out and asked to sign in again.

**Figure 6-9: Sign In Prompt**



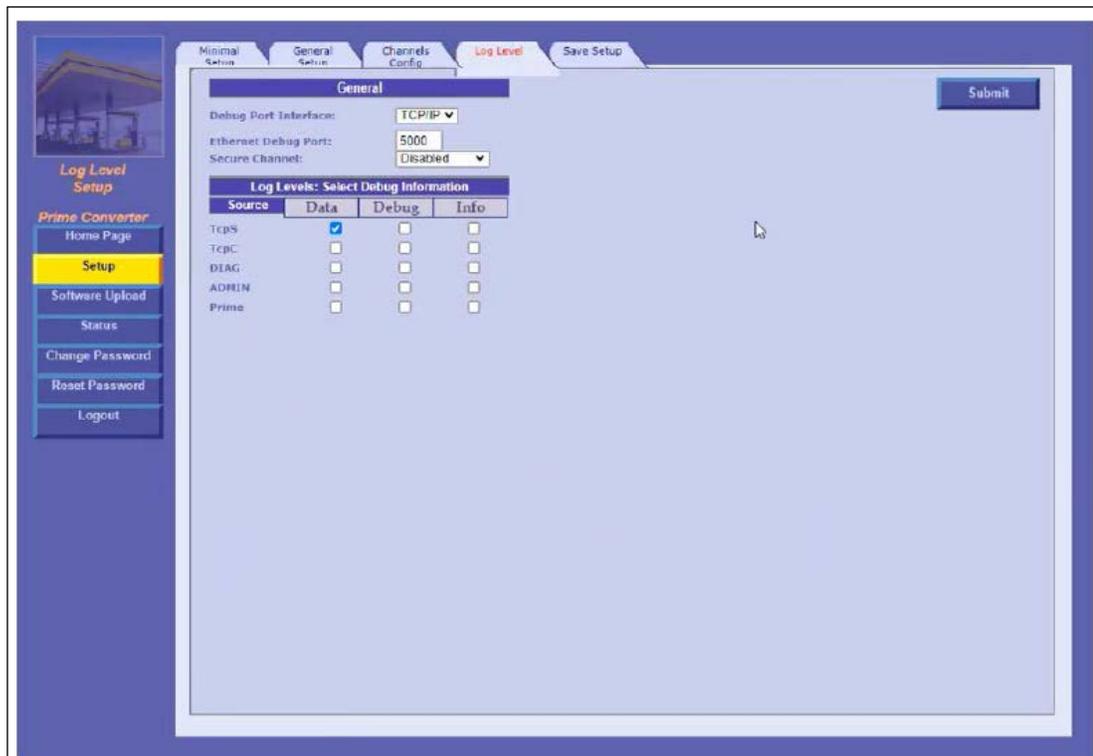
- 5 After signing in, the following prompt is displayed.

**Figure 6-10: Update Configuration**



- 6 Click **OK**. The Home screen will display the updated settings.
- 7 To download an XML file containing all of the settings defined on the Setup page to the local machine, click **Download Setup to PC**. The following dialog is displayed.

**Figure 6-11: Download Setup File**



- 8 Click **OK** to confirm.

*Note: The dialog screenshots in this procedure are for demonstration purposes only, including the IP address in the headers. Use the IP address provided to you by Customer Support when performing this procedure.*

## Software Upload

The Software Upload screen enables uploading the newest software and firmware versions provided to the technicians by the provider (see [Figure 6-12](#)).

**Figure 6-12: PRIME Converter Software Upload Page**



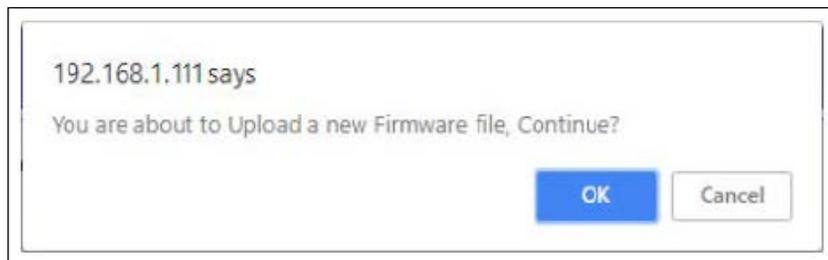
The Software Upload screen includes the following fields:

Field	Description
File Type	<ul style="list-style-type: none"> <li>• Application</li> <li>• Boot Loader</li> <li>• Configuration File</li> <li>• Pump Mezzanine</li> </ul>
Update Options	Currently only Update Immediate is available
Choose File	Opens a browser to select a file for upload
Force Update	When enabled, forces a software update. Used only when reverting to a previous version of the software

To upload a file to the device, proceed as follows:

- 1 In the File Type drop-down, select the file type that you want to upload.
- 2 Click **Choose File** to launch a browser window, and browse to the file path of the software version to upload.
- 3 Select the file and click **Open**.
- 4 Click **Upload**. The following dialog is displayed.

**Figure 6-13: Confirm Upload Dialog**



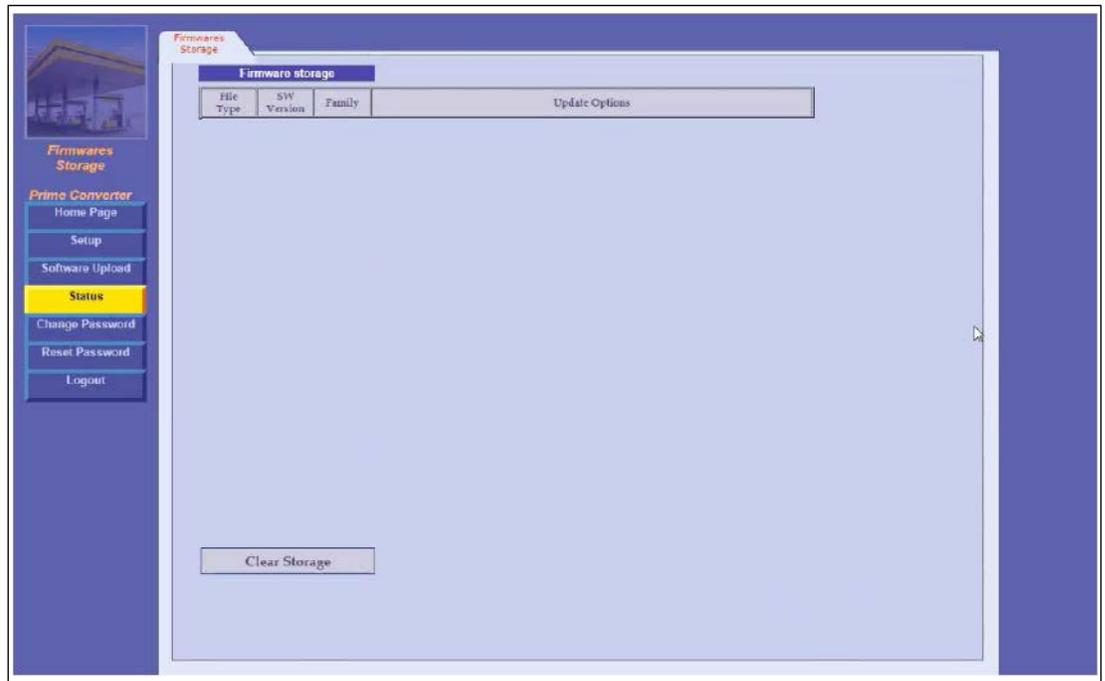
- 5 Click **OK** to confirm and upload the file.

*Note: The Pump Mezzanine option refers to the converter's interface with the connected device, which is displayed in the Pump Interface 1/2/3 Version in the Home screen.*

## Status

The Status page displays all the previous software and firmware updates that were uploaded and implemented in the device. These uploads will be listed in the table under Firmware storage.

**Figure 6-14: PRIME Converter Status Page**

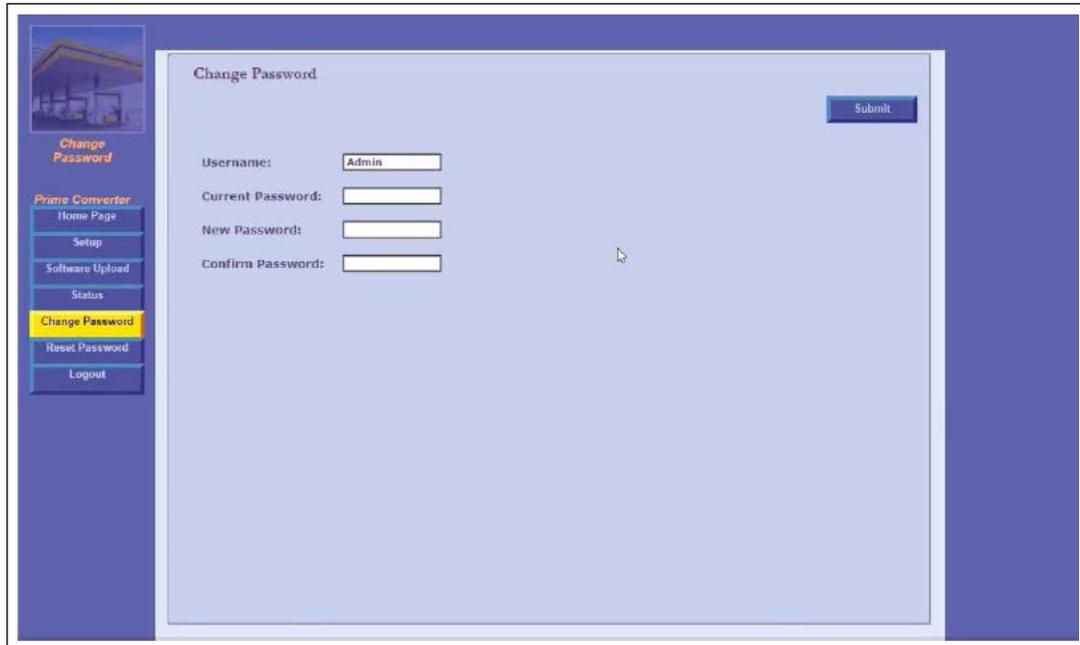


To clear all the uploads listed under Firmware storage, click **Clear Storage**.

## Change Password

On the Change Password page, the user can change the password used to log into PRIME Converter web site.

**Figure 6-15: PRIME Converter Change Password Page**



The screenshot shows the 'Change Password' page in the PRIME Converter web interface. On the left is a vertical navigation menu with the following items: 'Change Password' (highlighted in yellow), 'Home Page', 'Setup', 'Software Upload', 'Status', 'Reset Password', and 'Logout'. The main content area is titled 'Change Password' and contains the following form fields:

- Username:** A text input field containing the text 'Admin'.
- Current Password:** An empty text input field.
- New Password:** An empty text input field.
- Confirm Password:** An empty text input field.

A blue 'Submit' button is located in the top right corner of the form area.

To change password, proceed as follows:

- 1 In the Change Password Page, fill in the details for the following fields:
  - **Username:** Enter the existing user name
  - **Current Password:** Enter the existing password
  - **New Password:** Enter the desired new password
  - **Confirm Password:** Enter the new password again to confirm it
- 2 After filling in all the details, click **Submit**. The new password is now in effect.

# Reset Password

The Reset Password page is used to change the password or Device Key used to log into the device.

**Figure 6-16: PRIME Converter Reset Password Page**

The screenshot shows the 'Reset Password' page in the PRIME Converter web interface. On the left is a navigation sidebar with a 'Reset Password' tab highlighted in yellow. The main content area is titled 'Reset Password' and contains the following elements:

- A 'Submit' button in the top right corner.
- The instruction: 'Please enter confirmation code for resetting password'.
- A 'Key:' label followed by a text input field containing the value '72593352'.
- A 'Confirmation Code:' label followed by an empty text input field.

The device key is replaced every few seconds. When a technician wants to reset the device password (such as when they forgot the password), they need to contact the provider and perform the reset with them, proceed as follows:

- 1 The technician gives the provider the number that is displayed in the Key box.
- 2 The provider gives the technician a confirmation code.
- 3 The technician then enters the code provided into the Confirmation Code box.
- 4 The technician clicks the Submit button. The user name and password are reset to **Admin / Admin**.

*Note: To reset the password, the user needs to open the page in the browser with the Converter's IP address, and immediately click the Reset Password tab on the left of the screen BEFORE the login screen appears (see [Figure 6-16](#)). This action should be performed quickly.*

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# 7 – Troubleshooting

## General

This section provides a list of common pump/system problems which may be encountered when using the Site PRIME system, as well as corrective actions covering problems related to the system and its peripherals.

## Site PRIME

The following describes Site PRIME troubleshooting procedures and appropriate corrective actions.

### System Down

The following table describes the Site PRIME troubleshooting procedure and appropriate corrective actions when the system is down.

Fault	Probable Cause	Checks	Corrective Action
<ul style="list-style-type: none"> <li>• No communication</li> <li>• nOrCU LEDs are not lit</li> </ul>	Site PRIME main switch is off		Turn main switch on. After power on, wait a few seconds for the timer relay to be connected.
	No 12VDC/24VDC supply to the unit	Verify all input power connections: <ol style="list-style-type: none"> <li>1. Check cabling from junction box to the unit.</li> <li>2. Verify that power cable is properly connected to unit terminal block.</li> <li>3. Verify the input &amp; output voltage of the DC to DC converter.</li> <li>4. Is 12 VDC/24 VDC measured at the power input terminal block?</li> </ol>	Correct wiring problems. if 12 VDC/24 VDC is not measured.
	Power failure	Does the unit shut down immediately after being turned on?	<ol style="list-style-type: none"> <li>1. Check for shorts in the power line cable.</li> <li>2. Check grounding.</li> </ol>
	Circuit breaker is off	Is the breaker off or tripped?	Turn the breaker on, if switched off.
		Is 12VDC/24VDC being switched through breaker?	Replace breaker if 12VDC/24VDC is not being switched.
		Is 12VDC/24VDC measured at the power input terminal block?	Correct wiring problems if 12VDC/24VDC is not measured.
		Does the breaker turn off immediately after being turned on?	Check for loads or shorts in the power line.
	Internal fuse blown	Check the two pico fuses (red wires) at the bottom of the power supply using an ohmmeter	Replace the fuse if it is blown.
	Power supply failure	Verify that green LED on power supply is lit.	<ol style="list-style-type: none"> <li>1. Replace mini fuse.</li> <li>2. Replace power supply.</li> </ol>

## Mechanical Pump Does Not Fuel

The following table describes the Site PRIME troubleshooting procedure and appropriate Select Receipt Format - General Fields.

Fault	Probable Cause	Checks	Corrective Action
Pump does not supply fuel	Device is not allowed to refuel	<ol style="list-style-type: none"> <li>1. Open the pump from SiteOmat Status screen</li> <li>2. Verify that the vehicle/device has no limitation in FHO setup</li> </ol>	Enable the device to refuel.
	Pump setup is incorrect	Check pump setup: <ul style="list-style-type: none"> <li>• Pump server</li> <li>• Buses</li> <li>• Prices</li> <li>• Pulse Rate</li> </ul>	<ol style="list-style-type: none"> <li>1. Set pump parameters.</li> <li>2. Save and reload.</li> <li>3. Check again.</li> </ol>
Faulty connection to pump		Check control cables from Site PRIME to pump	Make a secure electrical connection.
Converter failure		Verify that Power LED is lit.	If it is off, use a voltmeter to check power supply to the unit: If power supply is okay, then replace the converter board. If power supply is faulty, replace the power supply.
		During Authorization, verify that the control LED on the converter (near the white connector) board is lit.	<ol style="list-style-type: none"> <li>1. Replace MPI-C board.</li> <li>2. Replace the converter.</li> </ol>
Pump malfunction		Turn the Site PRIME bypass switch on, lift the nozzle and check that the pump supplies fuel.	If the problem persists: <ol style="list-style-type: none"> <li>1. Check handle-on switch.</li> <li>2. Repair pump.</li> </ol>
Handle-on switch problem		Is the red in-use LED on the MPI-C board lit when the nozzle is lifted?	<ol style="list-style-type: none"> <li>1. Check in-use cable and repair (if necessary).</li> <li>2. Check terminal wires and repair (if necessary).</li> <li>3. Check in-use switch in the pump and repair (if necessary).</li> </ol>

<b>Fault</b>	<b>Probable Cause</b>	<b>Checks</b>	<b>Corrective Action</b>
Pump is authorized but call state is not detected (nozzle icon in SiteOmat Status screen does not display call state)	Faulty in-use switch in pump	Power off the pump. Use an ohmmeter to measure the switch in at on and off states.	Replace pump switch in cases where no short was detected
	Faulty connections	Check in-use cable. Check in-use terminal block connections.	Make good electrical connection, if faulty.
	Faulty in-use terminal block		Replace in-use terminal block.
	Faulty MPI-C board	Verify that the red call LED is lit when nozzle is lifted.	<ul style="list-style-type: none"> <li>If the red LED is not lit, replace the MPI-C board.</li> <li>If the led is lit, the problem is external to the controller.</li> </ul>
	Faulty converter		Replace converter
Pump is authorized, pump motor is running, but no fuel is supplied	<ul style="list-style-type: none"> <li>Faulty solenoid valve</li> <li>Faulty pump</li> </ul>	Does the pump solenoid valve produce a clicking sound?	<ul style="list-style-type: none"> <li>Replace valve</li> <li>Repair pump</li> </ul>
Payment device (card, key, tag, Fuel Ring) is not accepted	Communication fault between TR500 and SiteOmat	<ol style="list-style-type: none"> <li>Check communication cable.</li> <li>Check TR500 setup.</li> <li>Check SiteOmat setup.</li> </ol>	<ol style="list-style-type: none"> <li>Replace communication cable, if necessary.</li> <li>Set TR500 parameters properly.</li> <li>Set SiteOmat parameters properly.</li> </ol>
	Communication fault between FHO and SiteOmat	<ol style="list-style-type: none"> <li>Check connection path with FHO.</li> <li>Verify that the station is available and synchronized with FHO in FHO Stations Status screen.</li> </ol>	Repair communication between FHO and SiteOmat, providing a reliable communication line.
	Device was not defined or is defined incorrectly in FHO	<ol style="list-style-type: none"> <li>Log into FHO as Fleet Manager.</li> <li>Check that the device is defined.</li> <li>Check device parameters.</li> <li>Check that the device rules do not limit refueling.</li> </ol>	Define the device parameters in FHO properly.
	Device limit was passed	Verify that the device is within the limits of its rule	For testing only, remove any rule associated to this device
	Device was set as Drive	<ol style="list-style-type: none"> <li>Log into FHO and go to Device Management.</li> <li>Select the specific device and check it was configured as a Driver.</li> </ol>	Change the device setting to Vehicle
	Device is blocked	<ol style="list-style-type: none"> <li>Log into FHO and go to Devices Management.</li> <li>Check the status of the device in the Status column in the Devices grid (blocked / unblocked).</li> </ol>	Change device status to Unblocked.

## Pump is Authorized and Refueling but Volume Remains Zero

The following table describes the Site PRIME troubleshooting procedure and appropriate corrective actions when the pump is authorized and refueling but the volume remains at zero.

<b>Fault</b>	<b>Probable Cause</b>	<b>Checks</b>	<b>Corrective Action</b>
Pump is refueling but volume remains zero	Pulse factor is zero.	Check SiteOmat pump setup.	Change Pump Settings to correct the factor for the relevant pump.
	<ul style="list-style-type: none"> <li>• Faulty MPI-C board</li> <li>• Faulty pulser</li> </ul>	Disconnect the pulser and short the pulse-in wires to simulate pulses	If pulses are received during refueling, replace pump pulser. If not, replace MPI-C board.

## No Control Over Fueling

The following table describes the Site PRIME troubleshooting procedure and appropriate corrective actions when there is no control over fueling.

<b>Fault</b>	<b>Probable Cause</b>	<b>Checks</b>	<b>Corrective Action</b>
Pump is refueling without any control	Pump is in bypass	Verify that the Site PRIME bypass switch is off.	Turn bypass switch off, if it is on.
	Faulty SSR/relay		Replace the relevant SSR/relay unit connected to Site PRIME.
	If an external relay is used to control the pump / valve, it may be stuck due to a small current leak		Add a snubber (capacitor + resistor) in parallel to relay input.

# Communication

The following table describes problems related to communication to peripherals and consequent corrective actions.

<b>Fault</b>	<b>Probable Cause</b>	<b>Checks</b>	<b>Corrective Action</b>
<b>No Communication between FHO and SiteOmat Controller</b>			
No connection to the station from FHO Stations screen	Cabling issue	Inspect the network cable to LAN2.	<ol style="list-style-type: none"> <li>1. Verify that the LAN2 Port LED is blinking.</li> <li>2. Unplug the cable and plug it back in.</li> <li>3. Replace the LAN cable (if necessary).</li> <li>4. If the cable is in a good condition; contact the IT department to confirm that the switch / router connected to the LAN cable is installed properly.</li> <li>5. Check the controller network settings (IP addresses, mask, gateway, etc.).</li> </ol>
<b>No Communication with the Pumps (Converter)</b>			
Warning signs displayed for all pumps on the SiteOmat Status screen	Incorrect converter setup	<p>Check the physical connection of the converter to the local network (5-port switch activity)</p> <p>Check network connectivity by performing a "ping" command locally or remotely, through PuTTY application</p>	<ol style="list-style-type: none"> <li>1. If there is no activity on the LAN port connected to the converter, replace the short Ethernet cable and / or change the LAN port to confirm normal operation.</li> <li>2. Check the status of the LEDs on the converter (upper right corner of the board): the first and the third LED should be lit to confirm power and network connection, while second LED should blink to confirm network activity. The last two LEDs (from left to right) should be blinking constantly, to confirm communication with controller.</li> <li>3. In cases where all LEDs are lit periodically (every 30 seconds) the unit is resetting due to connection loss to the controller.</li> <li>4. Reset the IP and reconfigure the Pump Server (PS) in controller setup.</li> </ol>
<b>No Communication with the Nozzles (Wireless Gateway)</b>			
Can't read the vehicles and / or no authorization at the pumps	<ol style="list-style-type: none"> <li>1. No communication with the Wireless Gateway.</li> <li>2. Incorrect nozzle reader setup.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the physical connection of the Wireless Gateway to the local network (5-port switch).</li> <li>2. Check the Wireless Gateway network settings.</li> <li>3. Check the programming of the Wireless Nozzle Readers.</li> </ol>	<ol style="list-style-type: none"> <li>1. If no activity on the LAN port, check the cable and/or change the port on the 5-port switch.</li> <li>2. Remove the top cover to access the Wireless Gateway and check the status of the LEDs.</li> <li>3. Connect to the Wireless Gateway through the 9-pin serial port and open Hyperterminal (115200, 8, None, 1, None), reset the Wireless Gateway and follow the startup messages to find the IP address.</li> </ol>

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# Appendix A

## General

This appendix provides the wiring diagrams of the Site PRIME.

**Figure 7: Site PRIME with Orpay1000**

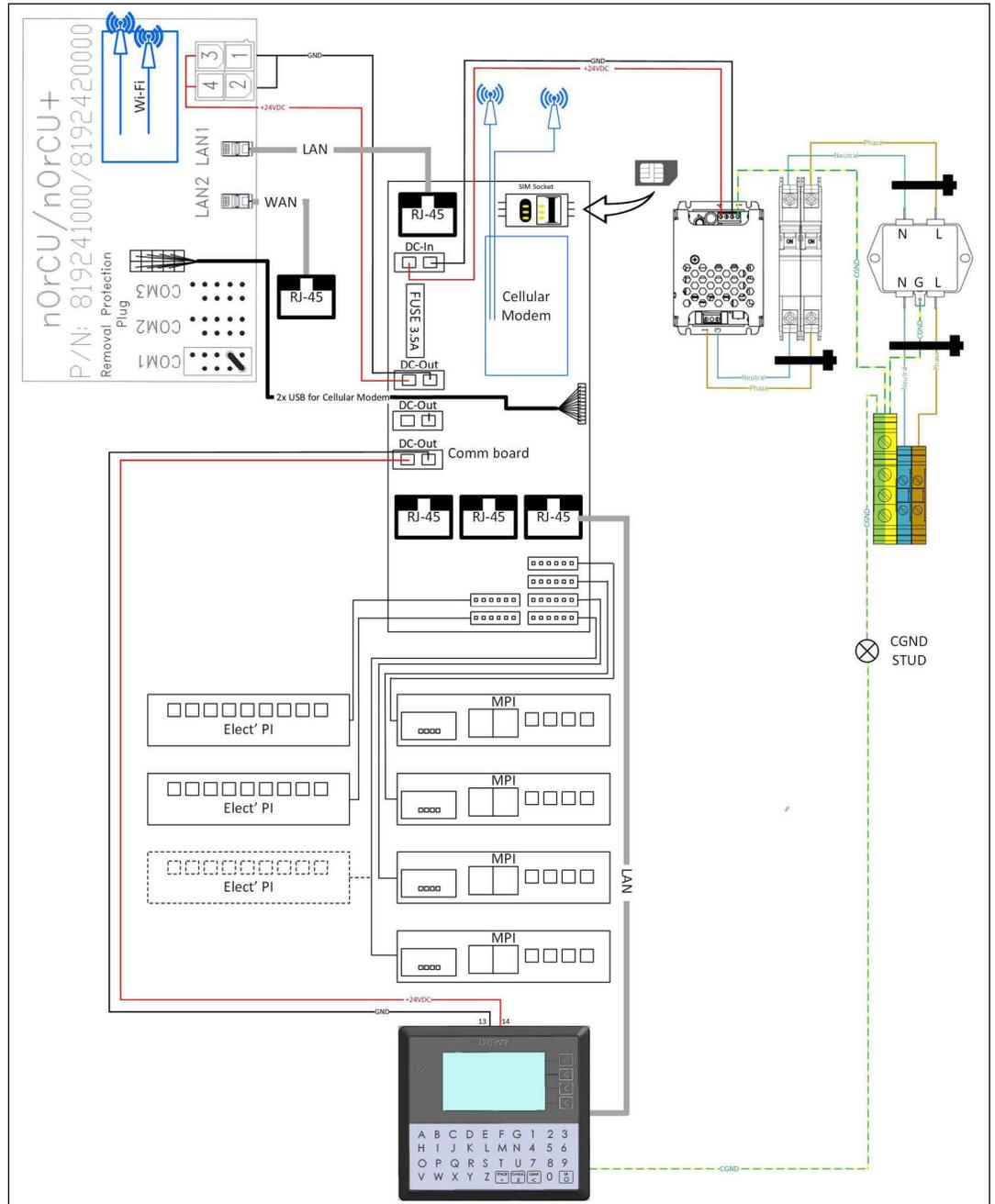
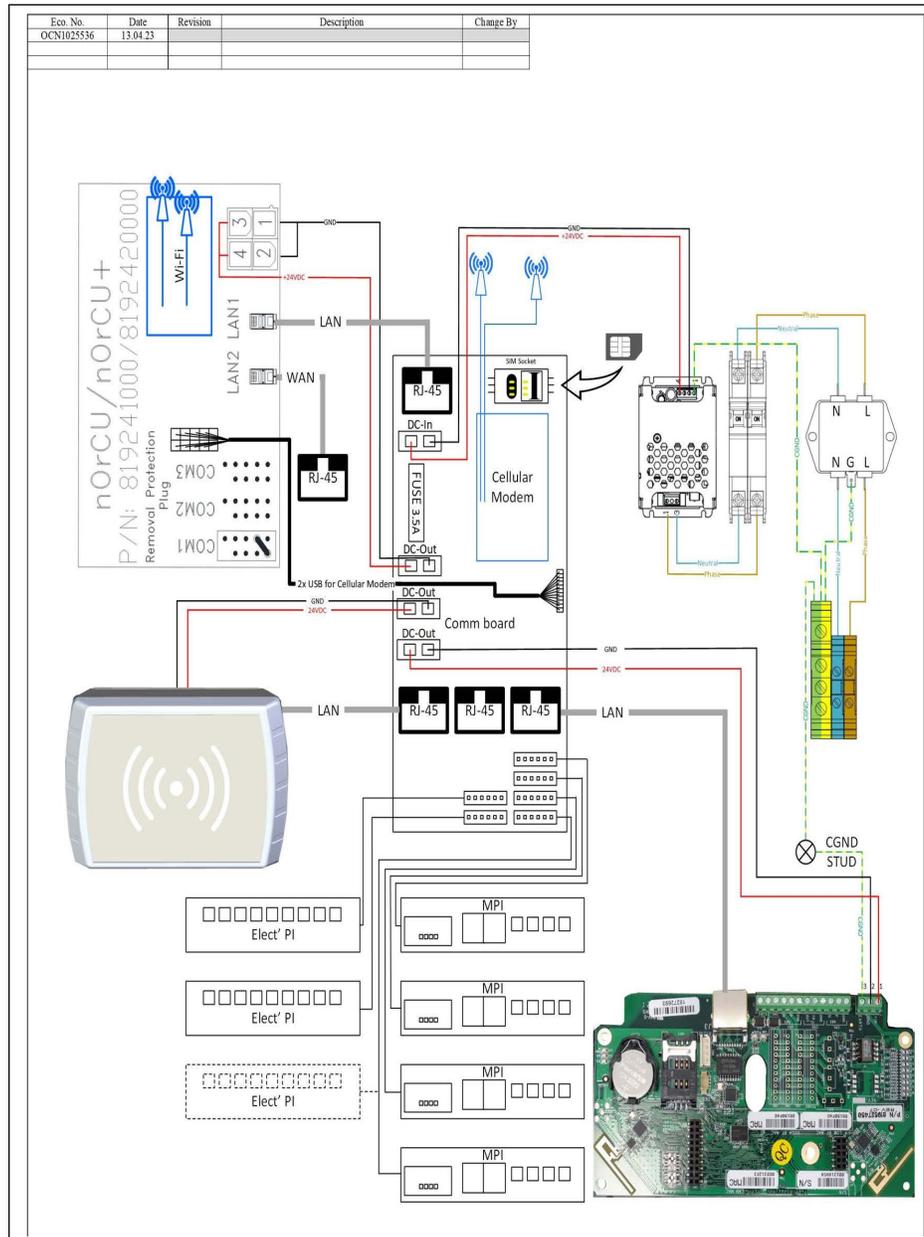


Figure 7-1: Site PRIME with TR500



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Preliminary

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