Fleet Solutions
Site PRIME Installation Guide

P/N: TBD

Revision A

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.

CONSIDÉRATIONS DE SÉCURITÉ

Lisez attentivement tous les avertissements et instructions fournis pour vous aider à installer et à entretenir l'équipement en toute sécurité dans l'environnement hautement inflammable d'une station-service.
Le non-respect de ces avertissements et instructions peut entraîner des blessures graves et la perte ou des dégâts matériels.
Vous êtes responsable d'installer, de faire fonctionner et d'entretenir le matériel conformément aux instructions de ce manuel, et de vous conformer à tous les codes, règlements et mesures de sécurité applicables. Faute de quoi toutes les garanties associées à ce matériel pourraient être annulées. Veillez à ce que l'installation soit effectuée par un personnel expérimenté, autorisé à effectuer des travaux dans les stations-service et dans des environnements inflammables, dans le respect réglementations locales et de toutes les normes applicables.

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.

AVERTISSEMENT - RISQUE D'EXPLOSION

Utilisez un conduit séparé pour le câblage de sécurité intrinsèque. Ne pas faire passer d'autres fils ou câbles par ce conduit, ceci pouvant entraîner un risque d'explosion. Utilisez l'équipement d'essai standard uniquement dans la zone non dangereuse de la station-service, et l'équipement d'essai approuvé pour les zones dangereuses.
L'installation et l'entretien doivent être conformes à toutes les exigences applicables du "Code sur les liquides inflammables et combustibles" NFPA-30, le "Automotive and Marine Service Station Code" NFPA-30A, et le "National Electric Code" NFPA-70 de la National Fire Protection Association, les codes fédéraux, nationaux et locaux et tous autres codes et réglementations de sécurité.
N'exécutez aucun travail sur des métaux dans la zone dangereuse. Les étincelles générées par le perçage, l'entaillage et d'autres opérations du travail des métaux peuvent enflammer les vapeurs de carburant et les liquides inflammables, entraînant la mort, des blessures sérieuses, des pertes ou des dégâts de matériel pour vous ou d'autres personnes.

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.

MISE EN GARDE - RISQUE DE CHOC ÉLECTRIQUE

Des tensions CA dangereuses pouvant entraîner la mort ou des blessures graves sont utilisées pour faire fonctionner l'équipement. Débranchez toujours l'alimentation électrique avant de travailler sur l'équipement. L'équipement peut avoir plus d'un point de raccordement à l'alimentation électrique. Débranchez toutes les sources d'alimentation, le disjoncteur du MCC compris, avant de procéder à l'entretien.

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.

AVERTISSEMENT - PASSAGE DE VÉHICULES

Lors du travail dans une zone ouverte, délimitez la zone de travail pour votre protection et celle des autres personnes. Utilisez des cônes de sécurité ou d'autres dispositifs de signalisation.

WARNING

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

AVERTISSEMENT

Les substitutions de composants peuvent nuire à la sécurité intrinsèque. L'utilisation de composants ou d'équipement non autorisés annulera toutes les garanties associées à cet équipement.

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.

MISE EN GARDE

Ne tentez pas d'effectuer des réparations sur les cartes de circuit imprimé de l'équipement, cela aurait pour effet d'annuler toutes les garanties associées à cet équipement.

WARNING

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

AVERTISSEMENT

L'unité n'est pas destinée à l'installation dans des environnements de type marin.

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Section 1 Introduction

1.1. General

This manual describes the Site PRIME, which is part of Orpak's 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.

1.2. 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 Orpak'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.

1.3. Manual Structure

Section 1: Introduction

This section provides a general description of the system.

Section 2: System Overview

This section provides a general description of the Site PRIME system.

Section 3: Installation Procedures

This section provides a detailed description of the Site PRIME installation requirements and procedures.

1.4. 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:

- SiteOmat Station Controller User Manual, P/N 817423751
- SiteOmat Installation and Maintenance Manual, P/N 817423756

1.5. Documentation Conventions

This manual uses the following conventions:

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

Les consignes d'avertissement contiennent des informations qui, à moins d'être strictement respectées, peuvent entraîner des blessures ou la mort.

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

Les consignes de mise en garde contiennent des informations qui, à moins d'être strictement respectées, peuvent entraîner des dommages ou la destruction de l'équipement ou des risques à long terme pour la santé du personnel.

Notes contain helpful comments or references to material not covered in the manual.

Best practice notes contain helpful suggestions.

Example notes contain additional information to illustrate a concept/procedure.

Section 2 System Overview

2.1. General

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

2.2. System Description

Site PRIME is an innovative product that enables refueling in homebase gas stations for a fleets' 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.

2.2.1. 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.

2.2.2. Remote Web Access

Remote Web-based capabilities for monitoring, management, and maintenance are available. A standard PC with an internet browser (Internet Explorer) is used for management of the site either locally or remotely (secured). There is no need for special management software thanks to the built-in Web server technology integrated into the station controller and the large variety of communication links supported – both wired and wireless.

2.2.3. 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.

2.2.4. Restrictions and Limits

Control of a fleet's fuel expenses can be controlled by defining limits (day, week, month), maximum number of refueling (per day, week, month), and setting restrictions (days of the week, fuel type, stations, 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.

2.2.5. 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, dial-in modem, VPN, satellite, ADSL and more.

2.2.6. System Workflow

The following is an example of an operational workflow for self-service at the homebase station.

2.2.6.1. Refueling Scenario with VIU

A driver stops for fuel at the station. Their authorization device for the fueling transaction is a Vehicle Identification Unit (VIU) mounted in 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.

2.3. Available Configurations

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

The following paragraphs describe the several configurations, and their device composition.

2.3.1. 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.

2.3.2. 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 optional AVI support. In can also be provided with a barcode reader.

2.3.3. PumpTop 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.

The PumpTop version includes a built-in G2 Printer and OrPAY1000, providing optional AVI support

The PumpTop PRIME is available in two configurations, the PumpTop PRIME without a barcode reader, or the PumpTop PRIME (UX) with a barcode reader.

2.3.4. 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 4 mechanical pumps. If more pumps are needed, an additional extension box is required. Each extension box can support up to 4 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)

2.4. Security and Protection

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

2.4.1. 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.

2.4.2. Maintenance Security

The Site PRIME maintenance and setup procedures require inserting a user name and password for access. For further information, please refer to the SiteOmat Setup Instructions Manual, P/N 817427356

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

2.5. Housing

The Site PRIME system enclosure is made of a sturdy metal 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.

2.6. Technical Specifications and Standards

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

2.6.1. Site PRIME Technical Specifications

The following details the physical, electrical, and environmental specifications of the Site PRIME (see Table 2-1):

Table 2-1 - Site PRIME Technical Specifications

Parameter	Value
Dimensions (W x H x D)	317mm x 294mm x 177mm (12.4803” x 11.5748” x 6.9685”)
Supply Voltage	» **Without printer:** 100-240VAC, 50/60 Hz, 65W » **With printer:** 100-240VAC, 50/60 Hz, 130W
Power Consumption	» **Without printer:**1.65A max » **With printer:** 3.3A max
Operating Temperature	» **No OrPAY1000:** -40°F to +158°F (-40°C to +70°C) » **OrPAY1000:** -40°F to +149°F (-40°C to +65°C) » **OrPAY1000 with barcode:** -40°F to +140°F (-40°C to +60°C)
Storage Temperature	-40°F to +158°F (-40°C to +70°C)
Humidity	80% Non-condensing

Parameter	Value
Communication Interface	**Default:** » 1x Ethernet RJ-45 – GBE for WAN (nOrCU) » 3x Ethernet RJ-45 100Base-T for internal or external optional devices **Optional Modules:** » 4G LTE Cellular modem with 2G/3G backward compatibility » Wi-Fi AP 2.4/5GHz » Orpak wireless communication via nWGT (for units without OrPAY1000) » Tag Reader via TR500 (for units without OrPAY1000)
Pump Interface	**Modules:** » 4x RS485 Module » 2x 422 + 2x 232 Module » 4x Tokheim Module » 4x PUMALAN Module » 4x Current Loop(2wires) Module » 1x Mechanical Pump Interface Module

2.6.2. AC/DC MPI Module Specifications

The following details the specifications of the AC/DC MPI Module (see Table 2-2):

Table 2-2 - AC/DC MPI Module Specifications

Parameter	Value
For MPI Module Pump Control Maximum Current Single SSR	» Open state voltage ratings: » **AC:** 100-240V » **DC:** 10-32V » Open state leakage current: maximum 5mA » Close state maximum current: 1.8A
Power supply output voltage to Pulser unit	12 V_{DC} 100mA max
Pulser Input voltage levels	» Positive “Hi-Logic” voltage: 4V – 32V_{DC} » Negative “Hi-Logic” voltage (-4V) – (-32V)$_{DC}$ » “Low-Logic” voltage (-0.6V) – (+0.6)V_{DC}

Parameter	Value
In-use	» Low voltage DC in-use: » Active: » 0 - 2 V_{DC} » Inactive state: » 6V - 32V_{DC} » Open contact » High voltage AC in-use: » Active: 100V_{AC} - 240V_{AC} » Inactive: 0 - 10V_{AC} ! Do not connect both Low and Hi In-use line simultaneously
Bypass	» Mechanical bypass switch operates in parallel to SSR » Smart Bypass reporting: » When SSR is at an open state, voltage on SSR contacts is monitored: » Standard: » AC: 100 - 240V » DC: 10-32V » Bypass: » AC or DC: 0 - 4V » When SSR goes to close state, the last value before going to close state is reported

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

2.6.3. 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.

Section 3 Preliminary Installation Procedures

3.1. General

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

- Preliminary instructions
- Wiring and wire conduits requirements

3.2. Precautions and Safety Notes
Précautions et consignes de sécurité

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

Avant toute activité d'installation, observez avec soin les précautions et les consignes de sécurité ci-dessous.

Warning: Before installing or servicing equipment, carefully observe the warnings and precautions provided at the beginning of this manual.
Avertissement: Avant l'installation ou l'entretien de l'équipement, observez avec soin les avertissements et les précautions mentionnés au début de ce manuel.

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-70A "National Electric Code", federal, state, local codes, and any other applicable safety codes and regulations.

L'environnement de base est hautement inflammable et combustible. Par conséquent, assurez-vous que l'installation soit réalisée par un personnel expérimenté, autorisé à travailler dans une station de base et capable de mettre en œuvre toutes les exigences applicable du "Code sur les liquides inflammables et combustibles" NFPA-30, le "Code for Motor Fuel Dispensing Facilities and Repair Garages" NFPA-30A et le "National Electric Code" NFPA-70 de la National Fire Protection Association, les codes fédéraux, nationaux et locaux et tous autres codes et réglementations de sécurité.

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

L'alimentation du système peut provenir de plus d'une source. Débranchez toutes les sources d'alimentation, les pompes comprises, avant de travailler sur le système.

Install Site PRIME in an area in accordance with the safety restrictions.

Installez Site PRIME dans une zone conforme aux restrictions en matière de sécurité.

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

La préparation du site d'Site PRIME est de la responsabilité du client.

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

Ne branchez pas l'alimentation électrique d'Site PRIME et d'autres périphériques, les pompes comprises, tant que toute l'installation n'a pas été contrôlée et certifiée.

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.

N'exécutez aucun travail sur des métaux dans la zone dangereuse. Les étincelles générées par le perçage, l'entaillage et d'autres opérations du travail des métaux peuvent enflammer les vapeurs de carburant et les liquides inflammables, entraînant la mort, des blessures sérieuses, des pertes ou des dégâts de matériel pour vous ou d'autres personnes.

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.

Lors du travail dans une zone ouverte de la station de base, faites attention aux véhicules de passage. Délimitez la zone de travail pour vous protéger vous et les autres personnes à l'aide de cône de sécurité ou d'autres dispositifs de signalisation.

3.3. 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:

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

3.3.1. 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 3rd 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 3rd 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 FuelOpass 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 Orpak Customer Support for approval
- After completing the installation, all open holes should be resealed

3.3.2. 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 110/220V power supply

3.3.3. 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:

- **High voltage conduits**
  - AC power for Site PRIME
  - Pump control from pumps to Site PRIME
  - Pump In-use signal from pumps to Site PRIME
- **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. or Tokheim
  - 24V power
- **Grounding**
  - At least 10 mm^2 Grounding cable to pump chassis
  - At least 10 mm^2 Grounding cable to Site PRIME

3.3.4. Wiring Conduits in Site PRIME

Site PRIME includes four wiring openings, each suited to specific wires, as listed in the Table 3-1.

Table 3-1 - Conduits into Site PRIME

No.	Conduit Type	Type
1	Low voltage	LAN cables, pump/TLS/barcode communication cables, 24V power
2	High voltage	PC power cable, pump power cable, all 110V/220V cables

3.3.5. 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:
    - Low voltage cables junction boxes:
        - One conduit to the office (control room)
        - One conduit to each pump
        - Two conduits to Site PRIME
    - High voltage cables junction box:
        - One conduit to the office (control room)
        - One conduit to each pump
        - Two conduits to Site PRIME

3.3.6. 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 3-1).

Figure 3-1 - Conduit Fitting

3.4. Cable Insertion

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

Note: All devices in the system must be connected to the same electric power phase.

Note: 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.
Avertissement: Pour les raccordements d'alimentation, utilisez des fils convenant à au moins 90°C / 194°F. Le câblage de signal raccordé dans cette doit être conçu pour au moins 300V.

3.4.1. Cable Types

The following are the types of cables used for the wiring of the Site PRIME system (see Table 3-2):

Table 3-2 - Site PRIME Cable Types

No.	Function	Type
1	Pump communication	Low capacitance cable designed for communication, such as BELDEN 8723
2	Power cable	XLPE
3	LAN	STP CAT5e/CAT6/CAT7 (shielded) and ended with RJ45 connectors (metal and CAT shielded) at both ends
4	GND	Ground cable 0.4" (10.8 mm^2)

3.5. 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)

3.5.1. Connection Diagram

The following diagram shows the requested connections of the power equipment (see Figure 3-2):

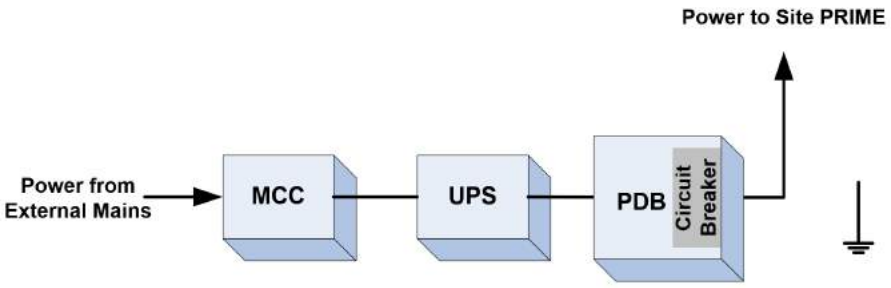

Figure 3-2 - Power Equipment Connections

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

3.5.2. 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 back wall.

To connect the power equipment, proceed as follows:

- External Mains
  - Connect Mains power to the Mains Circuit Control Box (MCC)
- Uninterruptible Power Supply (UPS)
  - Connect the MCC to the UPS
- 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" (10mm) 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.

3.5.3. 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 have to be long enough to run through the pole to the Site PRIME.

Section 4 Site PRIME Installation Procedures

4.1. General

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

- Installation Guidelines
- Homebase Station
- Mapping the Site
- Installing the Site PRIME
- Connections to Site PRIME
- Pump Interface Modules

4.2. Installation Guidelines

Best Practice: 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. Since 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.

4.2.1. Precautions and Safety Notes

Prior to actual installation activities, carefully observe the precautions and safety notes detailed in **Precautions and Safety Notes** and Requirements.

4.2.2. 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 (see Figure 4-1).

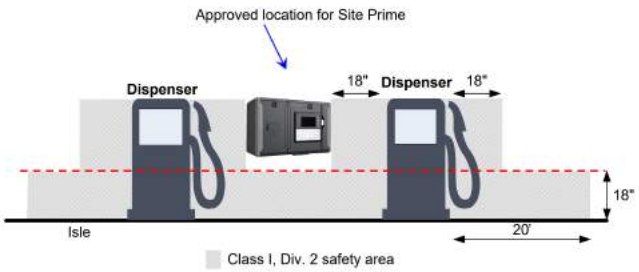

Figure 4-1 - Installation Control Drawing

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

4.3. 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 shows a functional diagram of the links within the homebase station (see Figure 4-2):

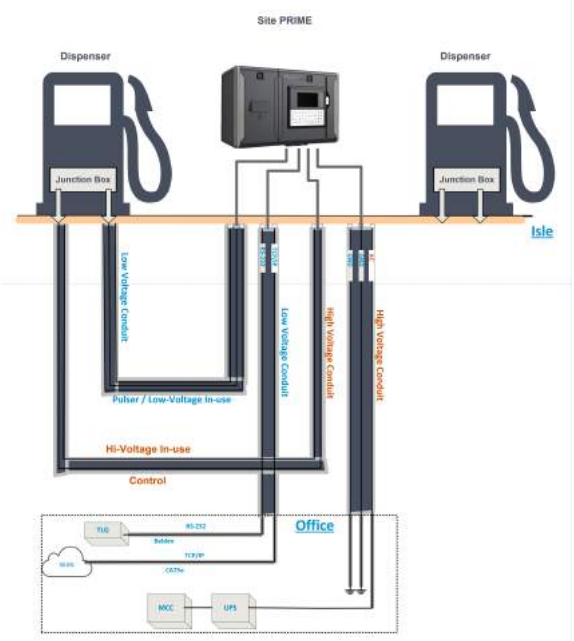

Figure 4-2 - Homebase Station Station System Diagram

4.3.1. Station Architecture

The homebase station functional architecture consists of the following levels:

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

4.3.1.1. 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

4.3.1.2. 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

4.3.1.3. 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.

4.4. 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

4.4.1. Locating and Mapping all Objects of the Site

- Locate the roads around the site
- Locate the islands and their dispensers

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

4.4.2. Assigning Logical Identifications (IDs) to the Devices

- 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
- 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
- Assign the Site PRIME its ID after installation on a flat surface

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

4.5. Installing 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

4.5.1. 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

4.5.2. Installation Procedure on Wall

Note: If the OrPAY1000 will be used as an MWGT for AVI support, the Site PRIME should be installed in a location where the signal will not be blocked. It is recommended to add a repeater to strengthen the RF network.

The following diagram details the dimensions of the Site PRIME when installed on the wall (see Figure 4-3):

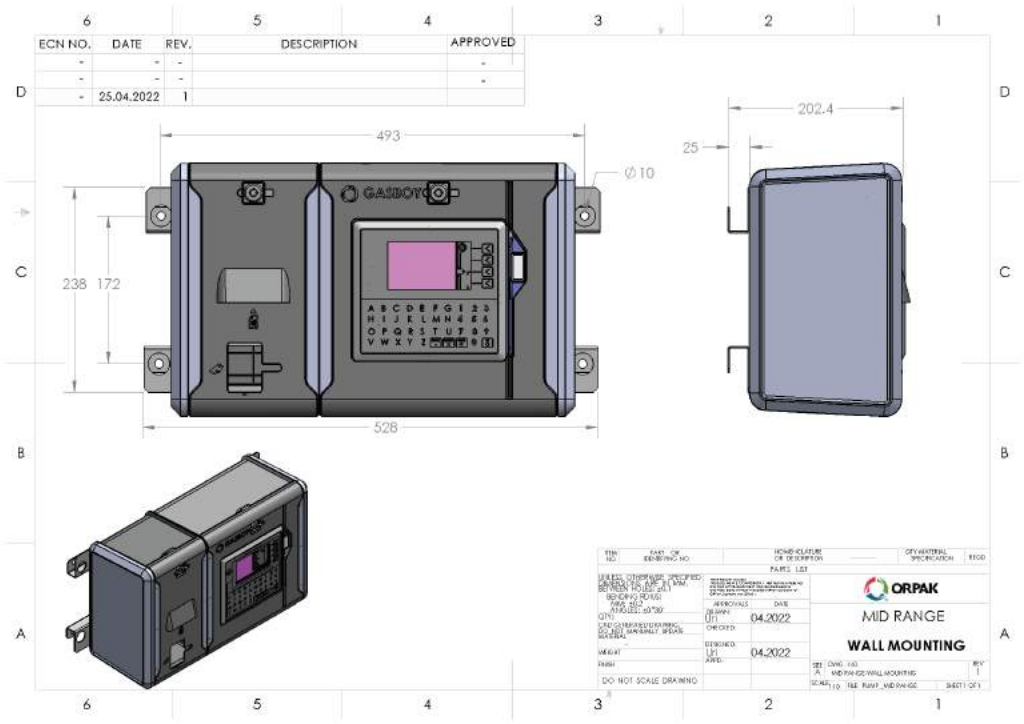

Figure 4-3 - Dimensions on the Wall

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. Securely install the rails provided with the Site PRIME using the 4x M6 screws provided in the installation kit. Ensure the rails are installed in the direction shown in the following image (see Figure 4-4):

Figure 4-4 - Site PRIME with Rails Installed

4. Set the Site PRIME on the location so that the installation holes on the rails fit with the anchors
5. Secure the Site PRIME. Verify that the Site PRIME enclosure is firmly held (see Figure 4-5):

Figure 4-5 - Site PRIME Installed on Wall

4.5.3. Installation Procedure on the Pole

The following diagram details the dimensions of the Site PRIME and the pole (see Figure 4-3):

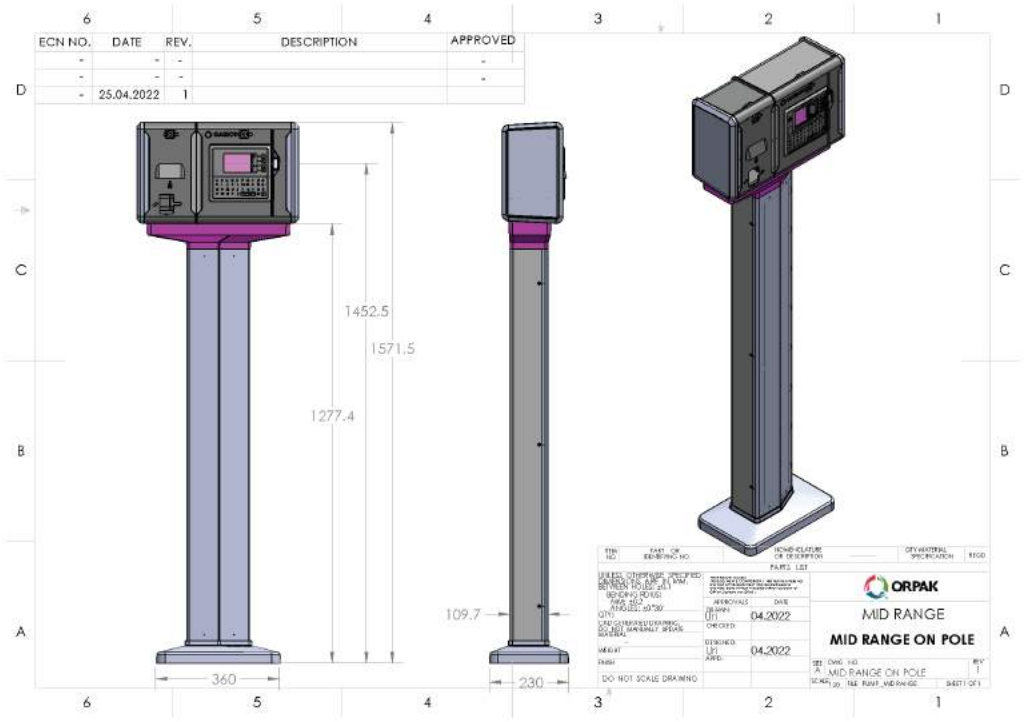

Figure 4-6 - Dimensions on the Pole

To perform the installation, proceed as follows:

1. Secure the base of the pole to the column with the 5 allen M6 screws provided.

Figure 4-7 - 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 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 4-8 - Rosette Cover

5. » For configurations that do not include a printer, place the smaller cable trough provided onto the pole and secure it with the provided allen M6 screws

Figure 4-9 - Small Cable Trough

» For configurations that include a printer, place the larger cable trough provided onto the pole and secure it with the provided allen M6 screws

Figure 4-10 - Large 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, as shown in the images below (see Figure 4-5, Figure 4-12):

Figure 4-11 - Site PRIME Secured to Cable Trough

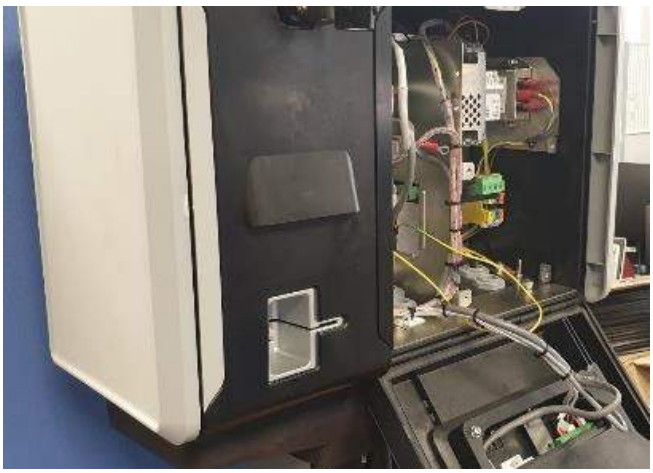

Figure 4-12 - PumpTop PRIME Secured to Cable Trough

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

Figure 4-13 - PumpTop PRIME Installed on Pole

4.6. Connections to Site PRIME

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

Ensure the cable glands are securely tightened to the cables running through them in order to ensure they are properly sealed

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 (see Figure 4-14)

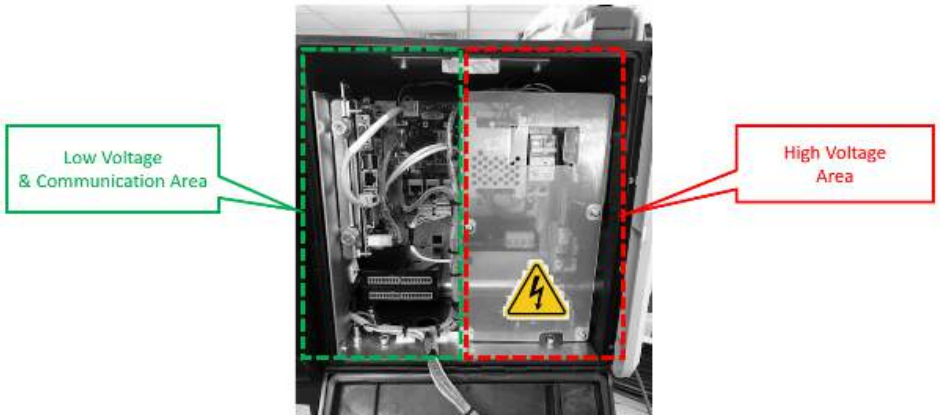

Figure 4-14 - High Voltage Area and Low Voltage & Communication Area

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

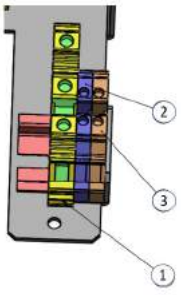

Figure 4-15 - AC Power Supply Connected to GND/Neutral/Line

The connections are as follows:

Table 4-1 - 1M Module - LED Indicators

Version	Input Power Range	T.B Yellow/Green (1)	T.B Blue (2)	T.B Orange (3)
Site PRIME (including UX and UX (BC))	100-240V_{AC}	GND/Earth	Neutral (0)	Line (~)
PumpTop PRIME (including (BC))	100-240V_{AC}	GND/Earth	Neutral (0)	Line (~)

4.7. 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

Figure 4-16 - Fastening Point of the Mechanical Pump Module on the Right

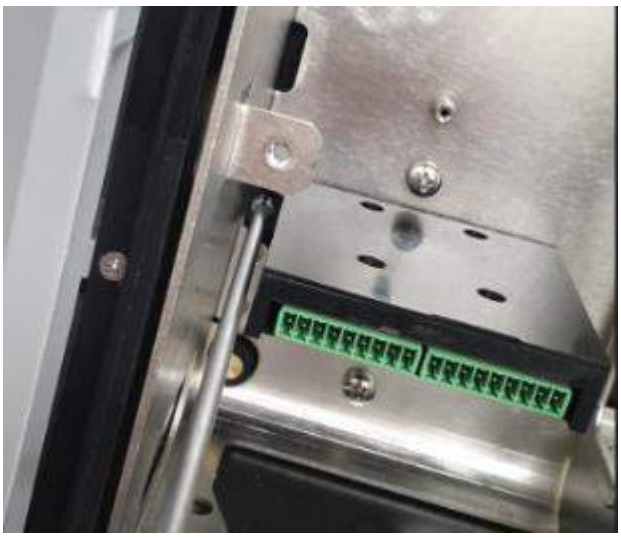

Figure 4-17 - Fastening Point of the Electronic Pump Module on the Left

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

4.7.1. Site PRIME 1M Module

The 1M Module is a pump module designed for mechanical pumps.

Figure 4-18 - 1M Module

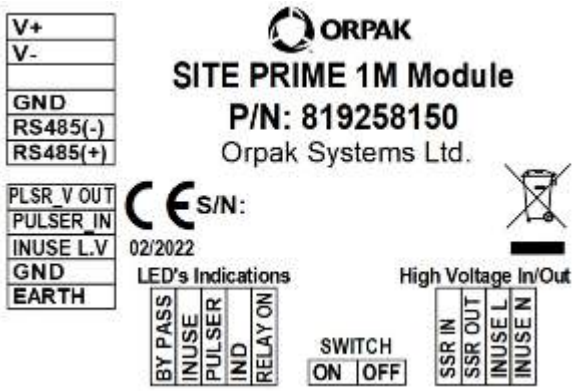

Figure 4-19 - 1M Module Wiring Connections

4.7.1.1. 1M Module - LED Indicators

The following table describes the various LED indicators on the 1M Module and their meaning (see Table 4-2). A legend below the tables explains the symbols and their meanings:

Table 4-2 - 1M Module - LED Indicators

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, ☼ LED flashing

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

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

4.7.2. Electronic Pump Modules

The Site PRIME has various pump modules required for the different electronic pumps it is compatible with.

Figure 4-20 - Electronic Pump Module

4.7.3. Electronic Pump Modules Connections

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

Table 4-3 - Electronic Pump Modules - Connections

Module Description		1	2	3	4	5	6	7	8	9
4 x PUMALAN Module	Left Connector	CH1 (RX)	CH1 (TX)	CH1 (G)	N.C	CH2 (RX)	CH2 (TX)	CH2 (G)	N.C	Chassis
	Right Connector	CH3 (RX)	CH3 (TX)	CH3 (G)	N.C	CH4 (RX)	CH4 (TX)	CH4 (G)	N.C	Chassis
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 Tokheim Module	Left Connector	CH1 (TTC)	CH1 (TTD)	CH1 (G)	N.C	CH2 (TTC)	CH2 (TTD)	CH2 (G)	N.C	Chassis
	Right Connector	CH3 (TTC)	CH3 (TTD)	CH3 (G)	N.C	CH4 (TTC)	CH4 (TTD)	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

Module Description		1	2	3	4	5	6	7	8	9
2 x RS422 + 2 x RS232 Module	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

4.8. 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 label (see Figure 4-21).

Figure 4-21 - FCC/IC label on Product Label

4.8.1. Cellular Modem Module

The Cellular Modem Module is provided with the following assembly kit components (see Figure 4-22, Figure 4-23, Figure 4-24, Figure 4-25, Figure 4-26, Table 4-4):

Table 4-4 - Cellular Modem Module Assembly Parts

Item No.	Description	Qty
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	Adhesive anchor	1
7	Cable tie	2
8	Harness 2x USB	1
9	Harness USB cover	1
10	Screw M3x20 PAN HD	1
11	FCC/IC Label	1

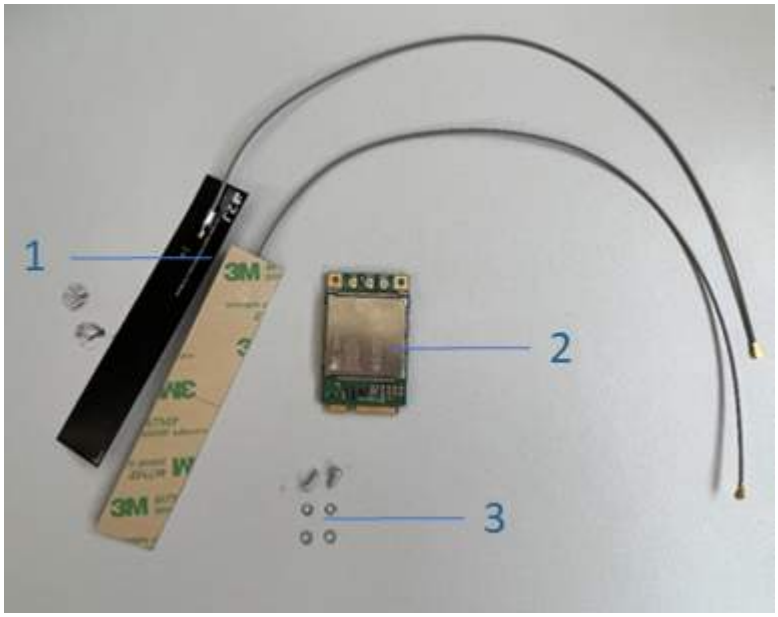

Figure 4-22 - Cellular Modem Module Assembly Parts

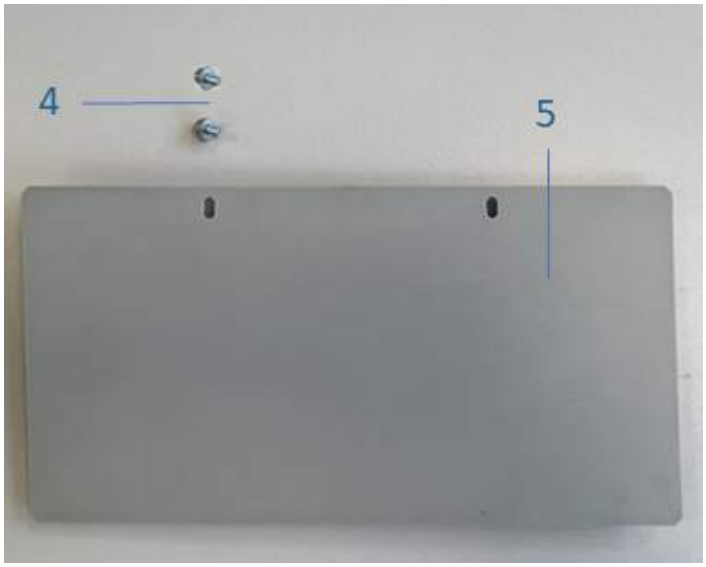

Figure 4-23 - Cellular Modem Module Assembly Parts

Figure 4-24 - Cellular Modem Module Assembly Parts

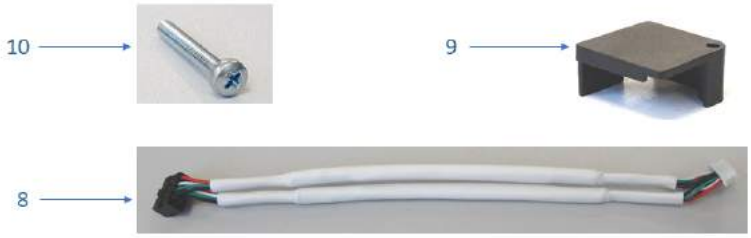

Figure 4-25 - Cellular Modem Module Assembly Parts

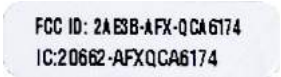

Figure 4-26 - Cellular Modem Module FCC/IC Label (11)

To install the Cellular Modem Module, proceed as follows:

1. Turn the main power switch to **OFF** position (see Figure 4-27):

Figure 4-27 - Main Power Switch - OFF

2. Disconnect and extract the nOrCU (see Figure 4-28):

Figure 4-28 - nOrCU Connection

3. Connect the USB cable to the USB connector on the nOrCU. Cover and fasten the cable with the cable cover, with the M3x20 screw (see Figure 4-29, Figure 4-30, Figure 4-31):

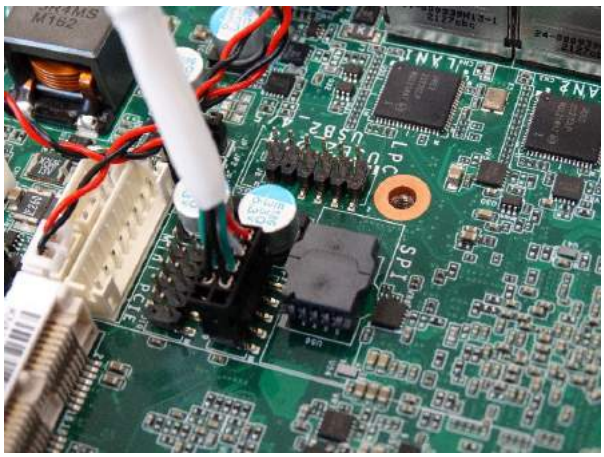

Figure 4-29 - USB Cable Connected to the USB Connector

Figure 4-30 - USB Cover Placed

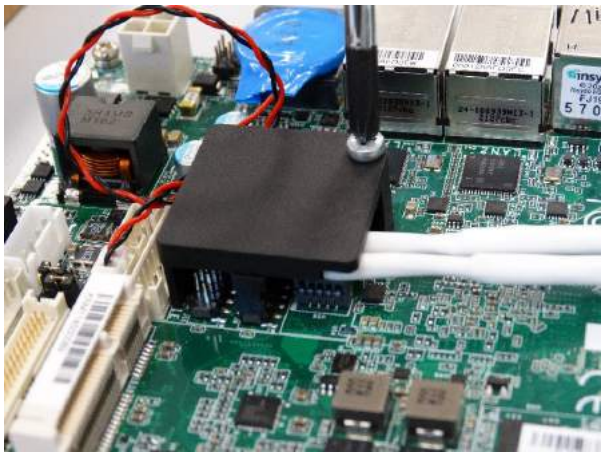

Figure 4-31 - USB Cover Fastened

4. Reinstall the nOrCU (see Figure 4-32):

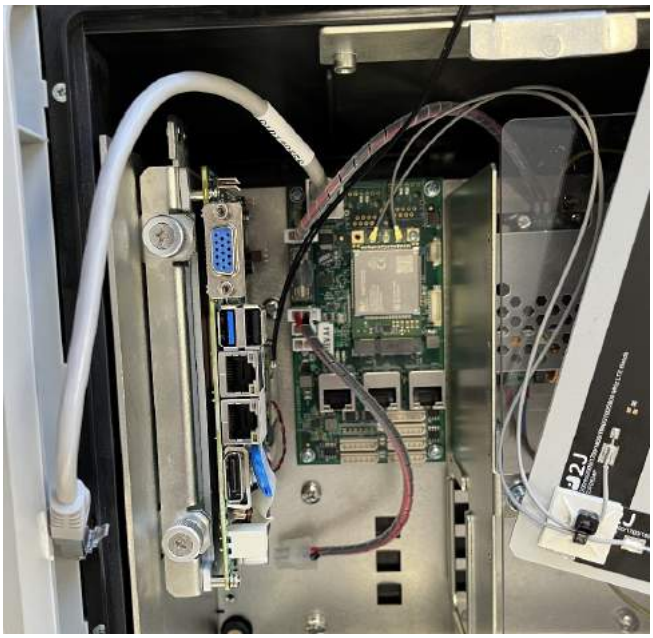

Figure 4-32 - nOrCU Reinstalled

5. Install the SIM card in the CommBoard SIM socket (see Figure 4-33):

Figure 4-33 - CommBoard SIM Socket

1. Slide the SIM socket cover to the right to remove it (see Figure 4-34):

Figure 4-34 - SIM Socket Cover Removed

2. Place the microSIM card on the SIM socket (see Figure 4-35):

Figure 4-35 - microSIM on SIM Socket

3. Slide the SIM socket cover back over the SIM socket, from right to left (see Figure 4-36):

Figure 4-36 - SIM Socket Cover Replaced

6. Install the antennas on the antenna tray
    1. Clean the antenna tray with alcohol to remove oil residue and dirt
    2. Peel the adhesive guard and place the antennas (see Figure 4-37):

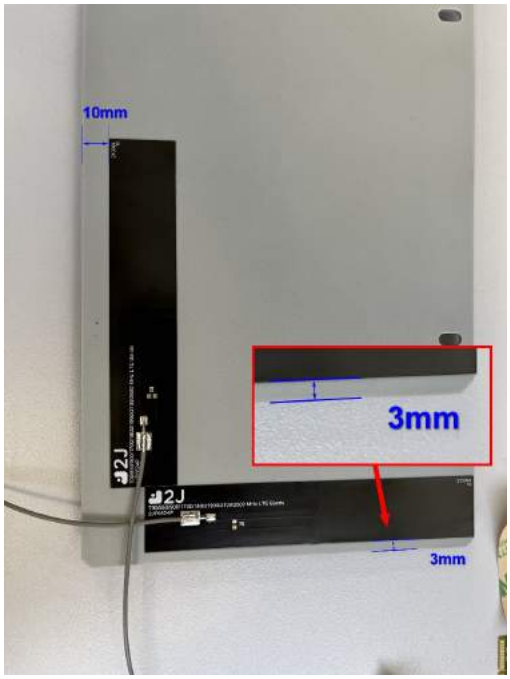

Figure 4-37 - Antenna Placement

    3. Secure the antenna wires with the antenna anchor and fasten with a cable tie (see Figure 4-38):

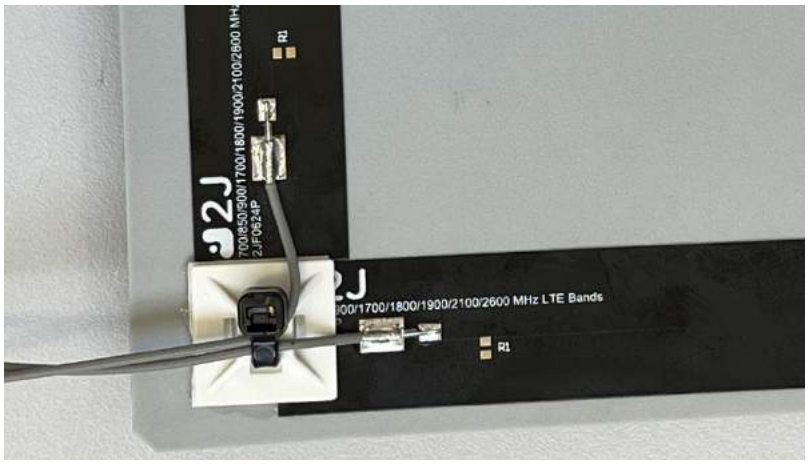

Figure 4-38 - Antenna Anchor

7. Connect the antennas to the module (see Figure 4-39):

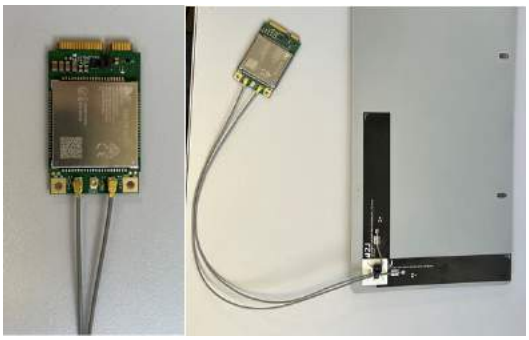

Figure 4-39 - Antennas Connected to Module

8. Install the module to the CommBoard mPCIe connector. Fasten the module with M2 screws (see Figure 4-40):

Figure 4-40 - Module on the CommBoard mPCIe Connector

9. Install the USB cable to the relevant connector on the CommBoard (see Figure 4-41):

Figure 4-41 - USB Installed on CommBoard

10. Install the Antenna tray using the M4x8 screws (see Figure 4-42):

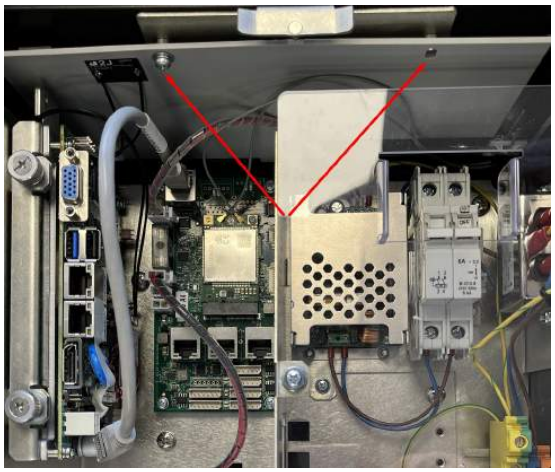

Figure 4-42 - Antenna Tray Installation

11. Turn the main power switch to **ON** position

4.8.2. Wi-Fi + BT Modem Module

The Wi-Fi + BT Modem Module is provided with the following assembly kit components (see Figure 4-43, Figure 4-44, Figure 4-45, Figure 4-46, Figure 4-47, Table 4-5):

Table 4-5 - Wi-Fi + BT Modem Module Assembly Parts

Item No.	Description	Qty
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	Adhesive anchor	1
8	Cable tie	2
9	FCC/IC Label	1

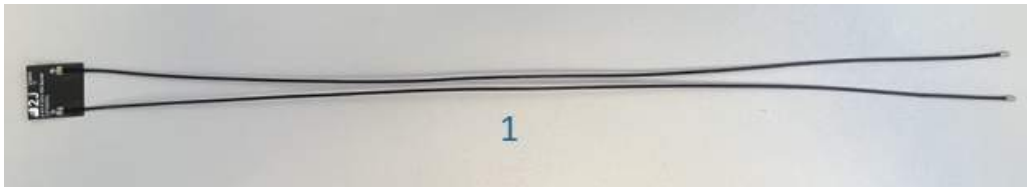

Figure 4-43 - Wi-Fi + BT Modem Module Assembly Parts

Figure 4-44 - Wi-Fi + BT Modem Module Assembly Parts

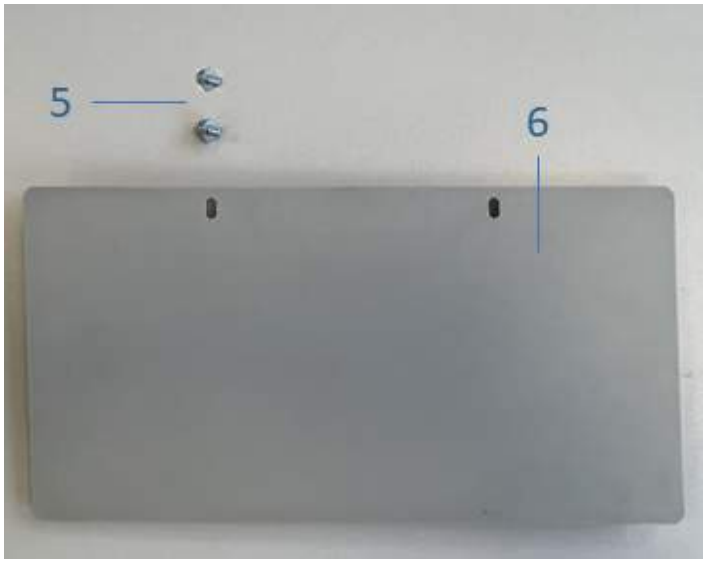

Figure 4-45 - Wi-Fi + BT Modem Module Assembly Parts

Figure 4-46 - Wi-Fi + BT Modem Module Assembly Parts

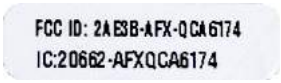

Figure 4-47 - Wi-Fi + BT Modem Module FCC/IC Label (9)

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

1. Turn the main power switch to **OFF** position (see Figure 4-48):

Figure 4-48 - Main Power Switch - OFF

2. Disconnect and extract the nOrCU (see Figure 4-49):

Figure 4-49 - 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 faster with the supplied adapter screws (see Figure 4-50):

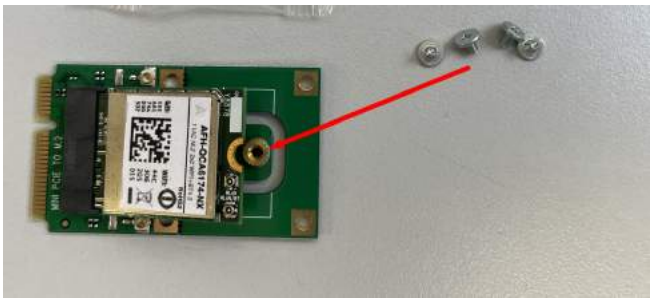

Figure 4-50 - M.2 Modem in the M.2 to mPCIe Adapter

4. Install the antennas on the antenna tray
    1. Clean the antenna tray with alcohol to remove oil residue and dirt
    2. Peel the adhesive guard and place the antennas

3. Secure the antenna wires with the antenna anchor and fasten with a cable tie (see Figure 4-51):

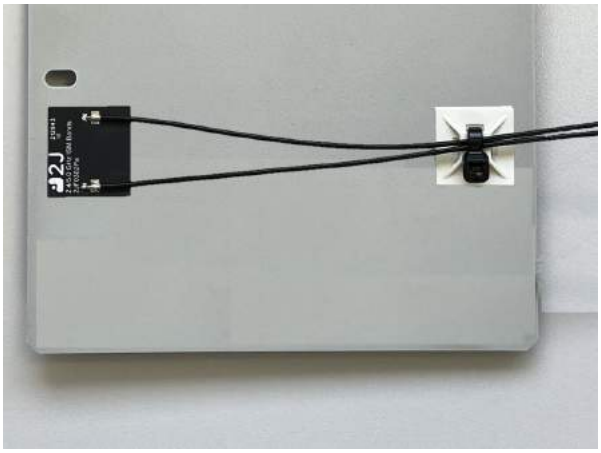

Figure 4-51 - Antenna Anchor

5. Connect the antennas to the modem assembly (see Figure 4-52):

Figure 4-52 - Antennas Connected to Modem Assembly

6. Install the modem assembly to the mPCIe connector on the nOrCU. Fasten the modem with M2 screws (see Figure 4-53):

Figure 4-53 - Modem Assembly on the mPCIe Connector

7. Reinstall the nOrCU (see Figure 4-54):

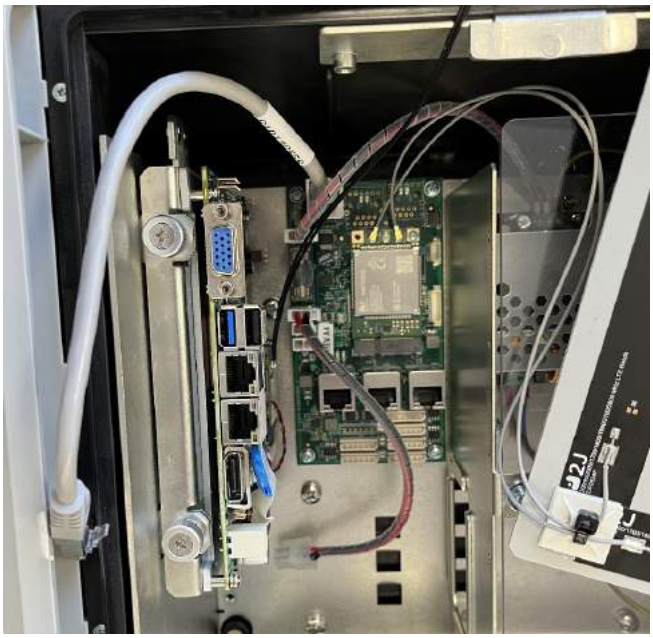

Figure 4-54 - nOrCU Reinstalled

8. Install the Antenna tray using the M4x8 screws (see Figure 4-55):

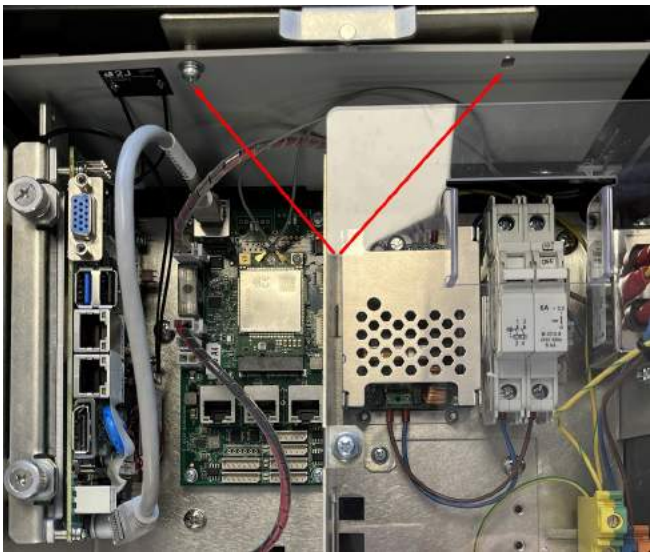

Figure 4-55 - Antenna Tray Installation

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

4.8.3. nWGT

The nWGT is provided with the following assembly kit components (see Figure 4-56, Figure 4-57, Figure 4-58, Table 4-6):

Table 4-6 - nWGT Assembly Parts

Item No.	Description	Qty
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	FCC/IC Label	1
6	Cable tie	4
7	WASHER M5, EXT. TOOTH LOCK	1
8	NUT, M5	1
9	WASHER FLAT M5 SST DIN-125	1
10	FCC/IC label	1

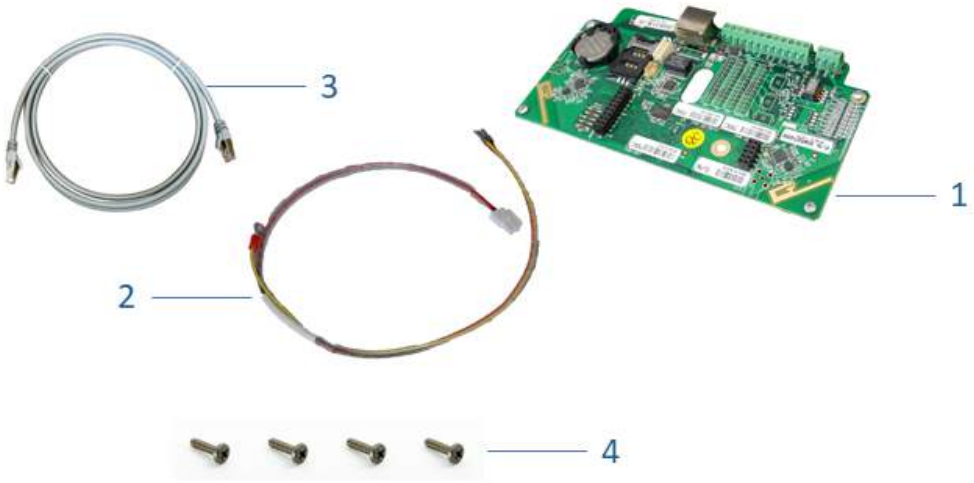

Figure 4-56 - nWGT Assembly Parts

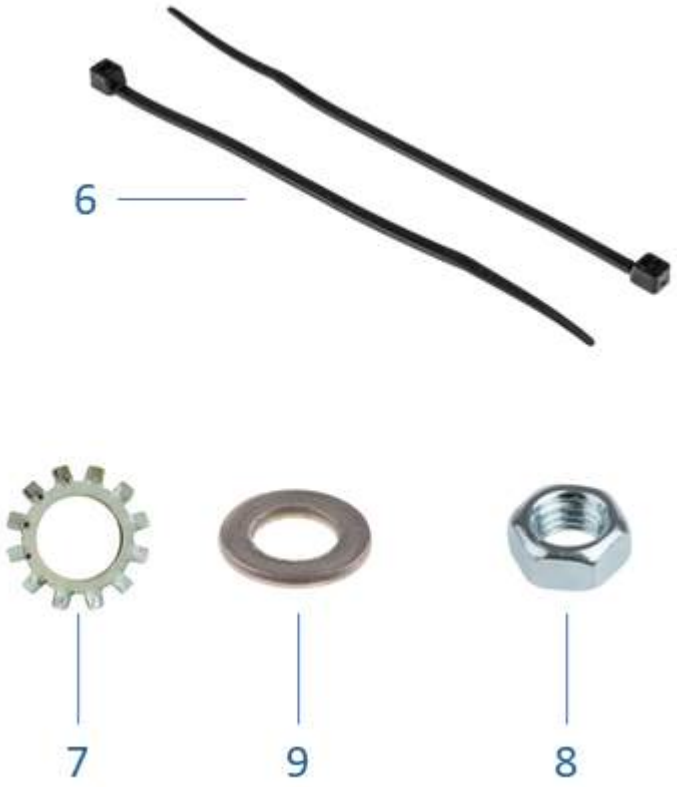

Figure 4-57 - nWGT Assembly Parts

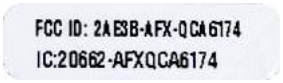

Figure 4-58 - nWGT FCC/IC Label (10)

To install the nWGT, proceed as follows:

1. Turn the main power switch to **OFF** position (see Figure 4-59):

Figure 4-59 - Main Power Switch - OFF

2. Install the nWGT on the Inside door panel, using the #3x12 screws to fasten the unit in to place (see Figure 4-60):

Figure 4-60 - nWGT Installed

3. Connect the 60cm 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) (see Figure 4-61):

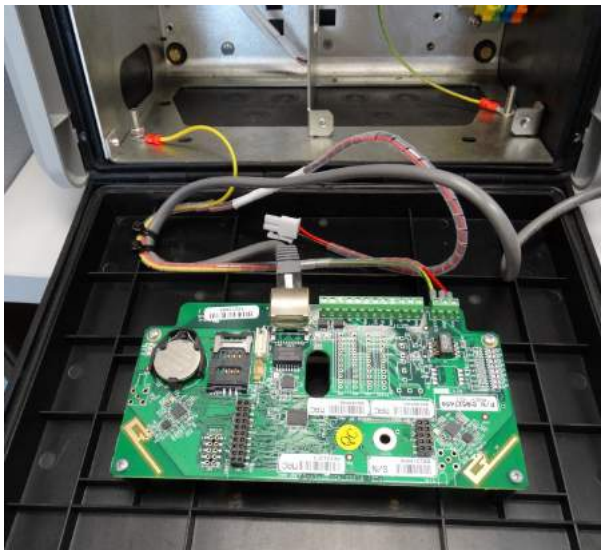

Figure 4-61 - Cables Connected

4. Connect the power harness and the LAN cable to the CommBoard and fasten the cables to the partition wall (see Figure 4-62):

Figure 4-62 - Connected to CommBoard

5. Turn the main power switch to **ON** position

4.8.4. TR500

The TR500 is provided with the following assembly kit components (see Figure 4-63, Figure 4-64, Table 4-7):

Table 4-7 - TR500 Assembly Parts

Item No.	Description	Qty
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

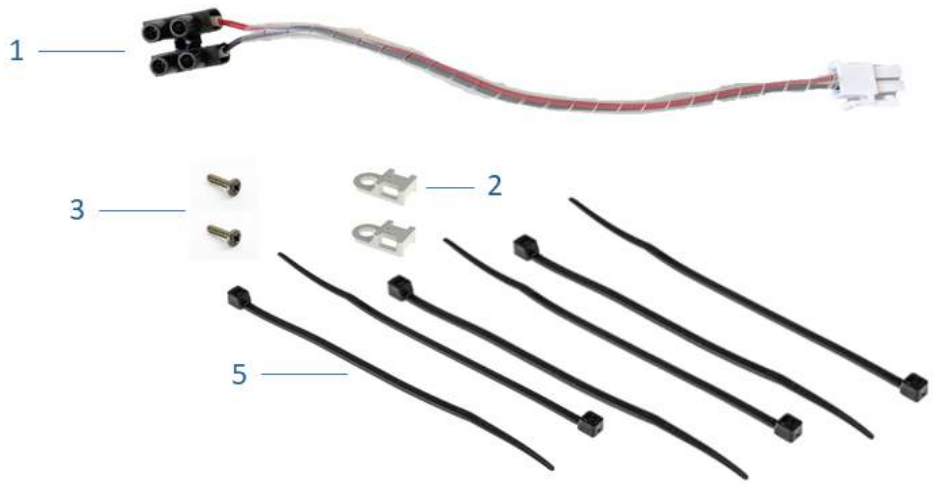

Figure 4-63 - TR500 Assembly Parts

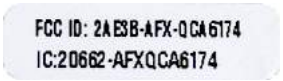

Figure 4-64 - TR500 FCC/IC Label (4)

To install the TR500, proceed as follows:

1. Turn the main power switch to **OFF** position (see Figure 4-65):

Figure 4-65 - Main Power Switch - OFF

2. Using a drill, cut four 3.5mm holes and a 20mm hole in the front panel (see Figure 4-66, Figure 4-67):

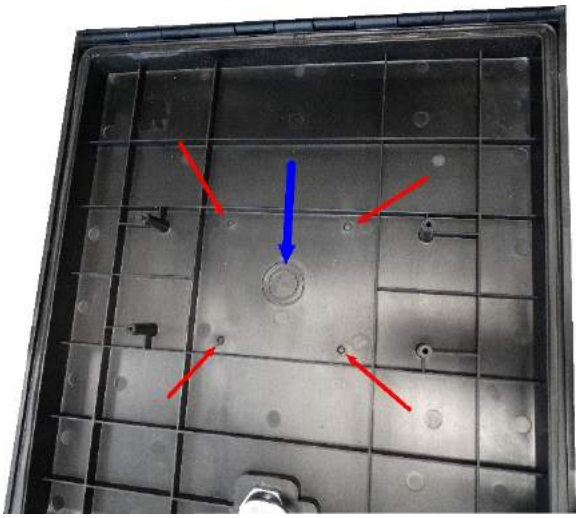

Figure 4-66 - Drill Locations

Figure 4-67 - Front Panel with Holes Drilled

3. Pull the TR500 power supply and LAN harness through the 20mm holes (see Figure 4-68):

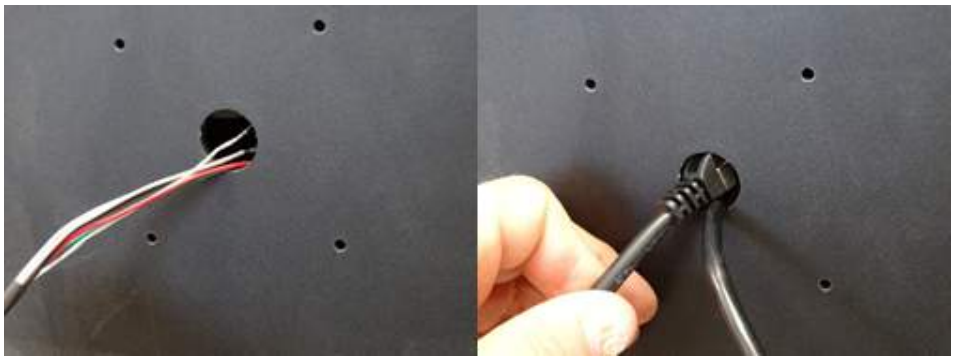

Figure 4-68 - Threading Cables

4. Fasten the TR500 to the panel and with the four M3 screws supplied with the TR500 (see Figure 4-69):

Figure 4-69 - Attaching TR500

5. Anchor the harness to the front panel with the anchors and screws provided with the kit (see Figure 4-70):

Figure 4-70 - Harness Anchored

6. Connect the TR500 to the power harness: red to green and black to white + clear (see Figure 4-71):

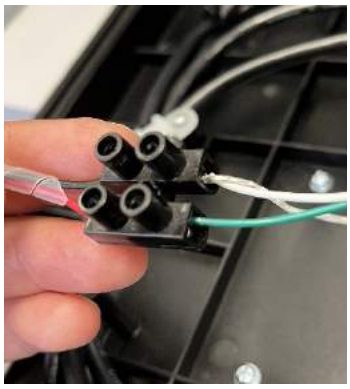

Figure 4-71 - Connecting to Harness

7. Cut the remaining wires in the TR500 power harness: red, black, gray (see Figure 4-72):

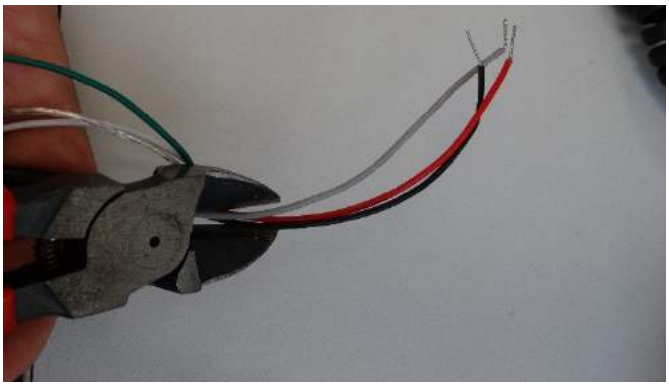

Figure 4-72 - Cutting the Wires

8. Connect the power harness and the LAN cable to the CommBoard and fasten the cables to the partition wall (see Figure 4-73):

Figure 4-73 - Connected to CommBoard

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

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