W4

Customer
Welcome Packet
Installation & Implementation

Ward W™
Intelligent Fuel Management Solutions

Contents

1. Typical System Overview

The following information supports Ward to properly configure, build and install your new Ward Fuel Control System.
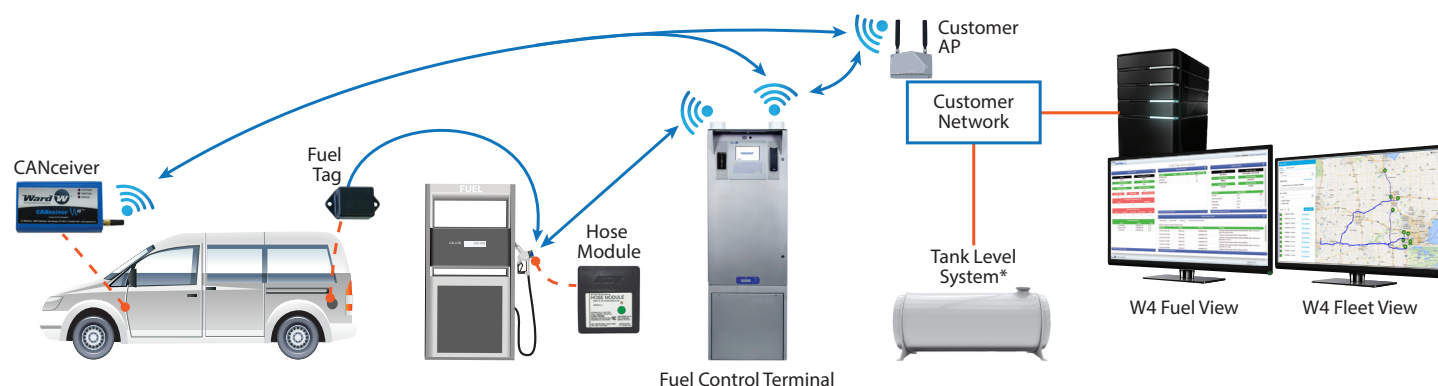
Typical Island Terminal Overview

Technology

As with any new technology system, there are many set up requirements. Space must be allocated on a server or separate servers. Servers can be physical or virtual. These servers can reside on one computer or on three separate computers. See Figure 1. This is entirely up to your technical team. The servers are as follows:

Application Server   Ward W4 Fuel View software location

Database Server   Customer fueling database location. Database holds company information and fueling transactions

Communications Server This server allows the application to communicate directly with the Ward Fuel Control Terminal (FCT)

Fuel View is a web-based application that communicates through virtual TCP Port 8080. In order to access the software, the system requires an IP address or website name that can be assigned to the application so that your staff can access it through a web browser. To install and maintain the system, our implementation and support team will require remote or VPN access to your system. This requirement allows our technical staff to access the servers for installation and support any of the applications.

Your FCTs are identified by using a static IP addresses. Static IP means that the IP address does not change like some systems that use another method commonly known as Dynamic IP addresses. You will be required to provide one (1) address for each FCT and/or 802.11 Wi-Fi device; some custom systems may require more (this will be covered on a case by case basis with your project manager).

It may be easier for your IT department to set aside a range of addresses for this project; for example, a range of addresses 192.168.1.10 through 192.168.1.100 could be used. This will allow the FCTs to be sequentially numbered. In addition to IP addresses, Ward will also require you to provide subnet mask and gateway addresses for your system. If your system is using Wi-Fi (802.11) for communication, the Ward team will require additional information including the encryption used by your network. CANceivers support WPA2-PSK version encryption.

The application communicates with the FCTs through virtual TCP Port 3001. If the network is using a firewall (which it most likely is), we will must have TCP Port 3001 opened between the communication server and the FCTs. Your IT or Network administrator should be able to handle this for your project management team.

Ward FCTs can connect to the network using multiple topologies; TCP-IP (using Cat5 network cable), 802.11 wireless networking and cellular are the most common. Depending on which topology of communication you select at your sites , it is critical the connection be functioning at each site when we install hardware at those locations. From time to time depending on how the contract is written, Ward may be responsible for installing the local site communication wiring or Wi-Fi hardware.

> **NOTE: In cases where an existing fuel management terminal (even one by Ward) that has been in place for many years may be out of compliance with current electrical codes or ordinances, upgrades may be required. If by contract, the electrical installation or infrastructure improvements fall under the responsibility of the customer, this work must be completed prior to Ward or its contractor arriving on site to install the FCT.**

Network

Network topology can be in many forms from simple to complex and is based on the size of your organization. Regardless of size, the software applications that run on the server must have the firewalls open on certain ports in order to communicate properly.

The lists of network ports that need to be open are:

NAME	PORT	SOURCE	DESTINATION	BI-DIRECTIONAL
Fuel View Website	2 Configurable Web Ports	Software end users (Web Client)	Web Server	Yes
Connect	3001	Communications Server	FCT	
WardComm	4001	Web Server	Communications Server	
Online Listener	4003	FCT	Communications Server	
CANceiver Listener	13000	DHCP	Communications Server	
Putty	22	Communications Server	FCT	Yes
MOXA AP Web Interface	80	Communications Server	FCT	Yes
WatchDog Service	9898	Communications Server	Web Server	Yes

Ward W4 CANceivers require DHCP addresses. Normally the DHCP server or local Wi-Fi AP provides this basic information:

- IP Address
- Subnet Mask
- Default Gateway

DHCP Basics

DHCP (Dynamic Host Configuration Protocol) is a standard protocol defined by RFC 1541 (which is superseded by RFC 2131) that allows a server to dynamically distribute IP addressing and configuration information to clients. Normally the DHCP server provides the client with at least this basic information:

- IP Address
- Subnet Mask
- Default Gateway

Other information can be provided as well, such as Domain Name Service (DNS) server addresses and Windows Internet Name Service (WINS) server addresses. The system administrator configures the DHCP server with the options that are parsed out to the client.

CANceivers require DHCP addresses. The amount of reserved IP addresses used for CANceivers is different based on your organization structure such as number sites, number of vehicles and DHCP lease times at each site. Ward will provide recommendations based on the organization structure.

> **CAUTION: It is important that all MAC address filtering is turned off. Failure to do so will cause device connection issues.**

Wi-Fi 802.11

Wi-Fi eliminates the need to run expensive telecommunications cable, conduits and trenching. If you ordered Ward's end to end solution which includes Access Points (AP), the Ward technician will take care of setting up the AP. All Ward products require the use of WPA2-PSK AES encryption protocols. If in the sales process there was a mutual agreement to use customer provided AP's, then the customer will need to set up the AP's and work with Ward on the settings.

> **CAUTION: If you are using Cisco AP's, the AP's must have the Passive Client feature and it must be enabled. Failure to enable Passive Client will result in communication failure between the FCT and AP. Please contact your Cisco representative to ensure that you have the latest version of the firmware.**

W4 Fuel View Software

Ward W4 Fuel View is an Enterprise Class .NET scalable web-based application that provides complete access, reporting and control of your fleet assets in an easy to use software platform. Fuel View is accessed through your web browser.

Database Support

Fuel View requires a supported database: Oracle version 11G or later, Microsoft SQL 2012 R2 or later.

Business Rules

Maximum Visits — Allows a limit to be set determining the number of times a vehicle can fuel within a 24 hour period with the Ward Fuel Management System.

Maximum Volume — Allows the user to set the maximum number of gallons or other unit of measure for fuel a vehicle can receive during one transaction.

Maximum Travel Distance — Allows the user to set the maximum number of miles the odometer can increment between fuel transactions and still allow fuel to be dispensed.
NOTE: The Maximum Travel Distance rule will only work if Odometer Prompting is set to *Prompt and Validate*, or *Validate Strictly.*

Odometer Prompting — Determines if the vehicle's odometer reading must be entered during non CANceiver/VIT fuel transactions. It also determines how the odometer criteria is accepted at the time of the transaction. The options and explanations are listed below.

No Prompt — If a vehicle is set to *No Prompt*, the FCT will not prompt the driver to enter the dash odometer value of that vehicle.

Prompt — When a vehicle is set to *Prompt*, the FCT will prompt the driver to input the vehicle's dash odometer value before fueling. The driver is able to put in any value and there is no validation that the value they put in is correct or acceptable.

Prompt and Validate   Requires that an odometer value is inputted before a transaction begins. The FCT relies on the Maximum Travel Distance Business Rule to ensure that the odometer value the driver entered is within the acceptable range.

If the odometer value is outside of the acceptable range, then the FCT will prompt the driver to input their odometer value again. If the odometer value the driver puts in the second time is the exact same value as they put in the first time, the FCT will accept that mileage and send the updated odometer value to the database. If the odometer value input the second time is different, the transaction will end and the driver will have to start over.

Validate Strictly   Setting relies on the Maximum Travel Distance to ensure that drivers are putting in correct odometer values when trying to fuel. If a driver inputs an odometer value that is beyond the acceptable range, the message Mileage Over Range will appear on the FCT display. The driver will be unable to fuel and must contact their Ward System Administrator.

Zero Limit or Zero Total Fueling   The number of zero quantity fuelings the pump may dispense in a row before the FCT automatically takes the pump off-line. Zero pump fueling limit prevents continued fueling should the pulser fail. The default setting is five. A setting of zero will allow unlimited zero quantity fueling.

Interpulse Time Out   The time limit (in seconds) that the operator may pause during a fueling operation transaction before the transaction is ended and the pump needs to be reauthorized before it can be used again. The default setting is 60 seconds.

Enable Timeout   Time limit (in seconds) that the operator has to begin fueling after a pump has been enabled. If the time limit is reached before the operator begins pumping, the transaction will be closed (creating a zero quantity fueling) and the pump will have to be reauthorized before it can be used again. The default is 60 seconds.

Fuel Transfers   Fuel transfers are handled through Fuel View software. If you have fueling trucks, fuel POD transfers are described in the *Fuel Transfer Cards* document, available from Ward.

2. Customer Provided Technology

- Application server with Internet and Windows Server 2012 or newer, pre-installed Communications server and database server
- Internet Explorer 11 installed on client desktops (other supported browsers include: Chrome, Mozilla Firefox, Safari, Opera, and SlimBrowser)
- VPN or remote access to the client system
- Administrator level access to associated servers and DBO rights to databases
- Static IP addresses, subnet mask and gateway for all FCTs and MOXA clients
- Open all ports requested in this document
- Network communication at each fueling site
- Network wiring to each FCT if applicable (dependent on contract)
- Upgraded electrical wiring to each FCT if applicable (dependent on contract)
- 802.11 Encryption protocols
- SSL Certificate

Legacy Data Conversion

If required, Ward may be contracted to import your legacy data from your existing system. If the contract includes legacy data conversion, a separate meeting will be held to discuss the specifics of the conversion process. The process consists of an initial meeting with your Database Administrator (DBA) and a Ward software specialist to determine the exact details of the conversion, and recommend a process based on our previous experiences and best practices. After the requirements have been finalized between both technical resources, the Project Managers will meet to determine a schedule for the conversion. Typically, the database conversion is completed once the fuel system is installed and functioning as expected.

Fuel Scripts

Each FCT requires a fuel script design based on the customer's specific business needs. The fuel script describes how the FCTs will operate and how the user will be prompted to enter information at the time of fueling. Ward will supply sample fuel scripts for you to review. The scripts that we provide are those used by a large number of our clients and represent the most efficient and user-friendly process to date.

Customer Responsibility

- Review sample fuel script
- Provide applicable comments
- Approve final fuel script

Schedule

For medium to large fuel management system installations, a mutually agreed upon schedule is necessary to facilitate the installation with minimal disruption to the customer. For multiple sites, Ward will provide a recommendation for an initial start site; however, the final order will be determined by customer requirements. Part of the schedule development requirement is for the customer to provide a calendar that shows times that Ward cannot work on your sites. For example, if you have a week in October when you are closed, please provide us with those dates to allow us to schedule around that time. Once you have provided your installation order and company calendar, Ward's Project Management team will provide a detailed project plan that will show the implementation schedule.

Customer Responsibility

- Approve start site (based on Ward's recommendation)
- Determine site installation order
- Company calendar showing all days that sites are closed

Task Order

There are a number of tasks when installing your system. The order of task completion is vital for a timely, smooth installation. The order completion of major tasks is:

1. Prompt Return of the Data Templates
2. Approval of Fuel Script
3. Fuel View Software Deployment
4. Network Communication
5. Vehicle Device Installation
6. FCT Installation
7. Training

HID Devices

Many of our customers use Human Interface Device (HID) proximity cards to identify their employees and/or key fobs to identify their employees/vehicles. Ward has the ability to use these same cards to identify employees at the FCT. In order to implement this system, we require a list of employee HID card information. Some of the most difficult information to acquire is HID card information. Many customers use a third party vendor to manage their HID information. Retrieving this information can sometimes take weeks and may involve additional costs. While Ward can assist with decoding the cards initially, it is essential for the customer to provide Ward with the HID card information encoded on each card.

Customer Responsibility

This information is required prior to building your database.

- Sample, pre-programmed HID card for Ward to use during testing
- Facility code and card range for the HID being used
- Sample pre-programmed key fob for Ward to use during testing
- HID hexadecimal code for each fueler on the Employee Template

CANceiver Events

Capturing your vehicle, driver and fuel data just got easier with the latest generation of Ward's W4 CANceiver. The W4 CANceiver is the most advanced vehicle data collection device available, enabling fully automated fueling, vehicle diagnostic collection and driver performance tracking.

Using customer defined parameters, the CANceiver is capable of logging events when available from the OBD port that are stored in the CANceiver until the vehicle is in the proximity of your Wi-Fi access point. All event settings and other values can be created via user interface screens in Fuel View. Depending on your business requirements, OBD captured configurations can apply to specific vehicles or the entire fleet. With Ward's standard wireless reprogramming feature, these changes can be made dynamically, and based on your changing business requirements.

3. Customer Participation

Without timely information exchange and approvals from the client, it is virtually impossible to install a system within a specific scope, schedule or budget. Customer participation and collaboration is critical for a smooth implementation. Several departments or individuals from your organization will participate at various stages in the process.

Project Manager

The most critical individual is your Project Manager, who will serve as the single point of contact between your organization and Ward. The PM is responsible for coordinating and finalizing all documents and information required to ensure all tasks on our checklists are completed.

Internal Advocate

A user or internal advocate for the fuel system responsible for communicating within your organization for required information.

TIP: We have found customers who do not have an individual assigned for internal communication have a more difficult time adapting to the new level of control the fuel management system provides.

IT Department

Your IT/Network Department must be available to assist during multiple phases of the implementation process. A resource must be available from IT to assist with setup of your server hardware and network configuration. A person with administrative level permission is required to ensure that the proper applications are loaded into your internal systems prior to Fuel View installation. An IT contact must be available to ensure that your corporate network, ports, and firewalls are properly configured for Fuel View.

A database resource must be assigned to ensure the database environment is available and properly configured. We strongly recommend a primary IT contact be appointed to coordinate the individuals and listed requirements.

4.   Customer Supplied Materials

Technology

- Application server with Windows Server 2012 or newer pre-installed
- Communications server
- Database server and software (example: MS SQL 2014)
- Internet Explorer 11 (or other supported browser)
- VPN or remote access to the client system
- Administrator level access to the associated servers and databases
- Static IP addresses, subnet mask and gateway for the FCTs
- Open TCP Port 3001 in the firewall between the servers and FCTs
- Network communication at each fueling site
- Network wiring to each FCT – if applicable (dependent on contract)
- Upgraded electrical wiring to each FCT – if applicable (dependent on contract)
- 802.11 encryption protocols
- Legacy data conversion requirements

Fuel Scripts

- Review sample fuel script
- Provide applicable comments
- Provide approval for final script

Schedule

- Selection of first site, based on Ward recommendation
- Order of site installation reviewed and approved
- Company calendar showing all days that sites are closed to Ward

HID

- Sample pre-programmed HID card for Ward to use during testing
- Facility code and card range for the HID being used
- Sample pre-programmed key fob for Ward to use during testing
- HID hexadecimal code for each user/fueler on the Employee template
- Information required prior to build of database

Staffing

- Project manager
- Communications person
- Primary IT contact (Hardware, Network, Software, Database resource)

Templates

- Completed Site Information
- Completed Employee List
- Completed Vehicle List
- Completed Department List
- Completed Network Template (required if using W4 CANceivers or W4 Truck Mount FCTs)
- Interface documentation

Typical Pre-Installation Task List

Tasks are divided into six categories across three phases. Once all requirements in each phase have been completed, fuel system installation may begin.

Phase One

Staffing

1. Project Manager assigned and contact information provided
2. IT contact assigned and contact information provided
3. Hardware resource assigned and contact information provided
4. Software resource assigned and contact information provided
5. Database resource assigned and contact information provided
6. Communications resource assigned and contact information provided

Technology

1. Application server selected and Internet Information Services (IIS) pre-installed on the server
2. Communication server selected
3. Database server selected
4. Configuration of servers verified with Ward
5. Call customer support for sign-in and password for www.ejward.com
6. User workstations with Internet Explorer 11

HID

For customers with HID cards, all requested information will be discussed at kickoff.

1. Provide sample, pre-programmed HID badge to Ward – if applicable
2. Provide sample, pre-programmed key fob to Ward – if applicable
3. Provide HID numbers (see the Employee List template)

Phase Two

Fuel Scripts

1. Sample fuel scripts received from Ward
2. Sample fuel scripts reviewed internally
3. Comments on fuel scripts have been provided to Ward
4. Fuel scripts have been approved by Ward Project Manager and customer
5. Finalized and approved fuel scripts have been returned to Ward

Templates

1. Site information template completed and submitted
2. Employee list template completed and submitted
3. Vehicle list template completed and submitted
4. Department list template completed and submitted
5. Network template completed and submitted

Schedule

1. Order of site installation finalized for Ward's review
2. Initial schedule for installations provided by Ward reviewed by customer
3. Final schedule and site order reviewed and agreed upon with Ward

Phase Three

1. Installation support
2. Web site name and/or IP address set up for Fuel View software
3. VPN access to the Fuel View, database and communication servers provided
4. Static IP addresses assigned to each FCT, Wi-Fi Client & AP, TLS (if required)
5. All ports open for communication with the FCTs
6. Network cables/connectivity available at all FCTs: Cat5 cabling provided to FCTs and tested; 802.11 networks provided and tested
7. System Administration group identified
8. Software training for System Administrator completed
9. User training – if applicable
10. Legacy data conversion requirements

5. Site Acceptance

After each Site's installation is finished, the Ward technician will request a completed Signature of Site Completion Form from the site supervisor or designated client representative. The Ward or authorized technician will review the form with the client to validate all agreed work was completed. Ward believes this practice is of mutual benefit for any project when both parties agree the requested work was completed to the satisfaction of the designated representative. The form provides a section for any concerns or comments the client has. Items identified in this section will be addressed as quickly as possible.

Transition to Warranty

Once each Site Completion Form has been signed and all items listed within the Notes section are addressed to the customer's satisfaction, the individual site will be considered complete and will begin its warranty period. Typically, Ward begins the customer warranty period when a site is completed; however, this may vary depending on the terms of your contract.

Transition to Customer Service

At the completion of the project, the management of your warranty will be assumed by Ward's Technical Support Group and you will no longer contact your Project Manager with issues or questions. Ward's Project Manager at the time of the transition will schedule a meeting to introduce the Technical Support Group Manager who will follow up with an informative Support Welcome Packet.

Customer Support

Ward believes providing useful customer resources is a vital component to overall customer satisfaction with easy access and 24/7 availability to critical resources.

On our website in the eResources library, customers have access to CANceiver compatibility table, user manuals and troubleshooting guides.

Appendix 1: Server Requirements

FLEET SIZE 1 - 999 VEHICLES	FLEET SIZE 1K - 2999 VEHICLES	FLEET SIZE 3000+ VEHICLES
Web		
Dual Xeon processors 2.2+ GHz @ 1866MHz 2 core minimum 12 GB RAM 150 - 300 GB Drive Space	Dual Xeon processors 2.2+ GHz @ 1866MHz 2 - 4 core minimum 12 GB RAM 150 - 300 GB Drive Space	Dual Xeon processors 2.2+ GHz @ 1866MHz 2 - 4 core minimum 12 GB RAM 150 - 300 GB Drive Space
Communication / Application		
Dual Xeon processors 2.2+ GHz @ 1866MHz 2 core minimum 24 GB RAM 250 - 500 GB Drive Space	Dual Xeon processors 2.2+ GHz @ 1866MHz 2 - 4 core minimum 24 GB RAM 250 - 500 GB Drive Space	Dual Xeon processors 2.2+ GHz @ 1866MHz 2 - 4 core minimum 24 GB RAM 300 - 500+ GB Drive Space
Database		
Dual Xeon processors 2.2+ GHz @ 1866MHz 2 core minimum Minimum 64GB RAM 750G - 1TB Drive Space	Dual Xeon processors 2.2+ GHz @ 1866MHz 2 - 4 core minimum Minimum 128GB RAM 1TB Drive Space	Dual Xeon processors 2.2+ GHz @ 1866MHz 4 - 6 core minimum Minimum 128+GB RAM 1 - 2+TB Drive Space
Software		
MS SQL 2014 or Newer Windows Server 2012 IIS: .NET 4.5 .NET 4.0	MS SQL 2014 or Newer Windows Server 2012 IIS: .NET 4.5 .NET 4.0	MS SQL 2014 or Newer Windows Server 2012 IIS: .NET 4.5 .NET 4.0
Ports Required Open		
Web: 5000 to 5010 (existing W4 customers) HTTPS: 443, 8443 HTTP: 80, 8080 WatchDog Service: 9898 TCP Connect: 3001 TCP Online Listener: 4001 TCP Online Listener: 4003 TCP CANceiver: 13000 PuTTY: 22	Web: 5000 to 5010 (existing W4 customers) HTTPS: 443, 8443 HTTP: 80, 8080 WatchDog Service: 9898 TCP Connect: 3001 TCP Online Listener: 4001 TCP Online Listener: 4003 TCP CANceiver: 13000 PuTTY: 22	Web: 5000 to 5010 (existing W4 customers) HTTPS: 443, 8443 HTTP: 80, 8080 WatchDog Service: 9898 TCP Connect: 3001 TCP Online Listener: 4001 TCP Online Listener: 4003 TCP CANceiver: 13000 PuTTY: 22
Options		
VM Environments SMTP Server Oracle Passive GPS Sync	VM Environments SMTP Server Oracle Passive GPS Sync	VM Environments SMTP Server Oracle Passive GPS Sync Load Balancer

NOTE: Customer is responsible to provide the HTTPS (SSL) Certificate so all communications between your browser and the website are encrypted in all Fleet size scenarios.

Appendix 2: Sample Network/Server Information Template

The Template form is provided by the Implementation Project Manager.

Ward W™
Intelligent Fuel Management Solutions

Wireless Network Template

Make of Router	
Model of Router	
SSID	
Passphrase (16 Characters Max.)	
Security Mode	Please select one
Encryption Type	Please select one
DHCP Server	Please select one
No. of Available IP Addresses	
IP Address Lease Time	
Communication Server IP Address	
Web Server IP Address	
Database Server IP Address	
SysID No. (Ward Provided)	

NOTICE

Valid SSID and Password Characters
Do **NOT** use these characters in the SSID or Password: ? , " , $, [, \ ,] , {space}

Characters that **MAY** be used **BUT** never as the first character: ! , # , ;

Appendix 3: Sample Site Completion Check List

The Template form is provided by the Implementation Project Manager.

W4 FCT INSTALLATION CHECK LIST

Site Name: _____

Site Address: _____

SysID: _____

Terminal Number: _____

FCT IP Address	FCT Subnet Mask	FCT Gateway	3121 IP Address	3121 Subnet Mask	3121 Gateway

4121 IP Address	4121 Subnet Mask	4121 Gateway	TLS IP Address	TLS Subnet Mask	TLS Gateway

Host IP Address _____

Site Technician Appointment Time and Date:　　　　**Time**　　　　**Date**

TANK #	Fuel Type	Tank Size	Pump(s)
1			
2			
3			
4			
5			
6			

TLS Model _____

Construction Check List

1 Conduit And Wire Pull Requirements

a	Conduit and seals installed according to code	☐ Complete	☐ Incomplete	☐ Non Applicable
b	AC Voltage: Breaker panel to W4-FCT	☐ Complete	☐ Incomplete	☐ Non Applicable
c	Network line, TCP/IP: "D" Mark to W4-FCT (If applicable)	☐ Complete	☐ Incomplete	☐ Non Applicable
d	Network cable to TLS (if applicable)	☐ Complete	☐ Incomplete	☐ Non Applicable
e	Control Wiring: Dispensers to W4-FCT	☐ Complete	☐ Incomplete	☐ Non Applicable
f	Pulser Wiring: Dispensers to W4-FCT	☐ Complete	☐ Incomplete	☐ Non Applicable
g	Check for proper isolated safety ground, from service ground	☐ Complete	☐ Incomplete	☐ Non Applicable

2 Site Construction

a	Permit Signed off from Inspector	☐ Complete	☐ Incomplete	☐ Non Applicable
b	Site construction site clean and free of debris	☐ Complete	☐ Incomplete	☐ Non Applicable

3 W4 FCT Installation

a	Properly anchored on island	☐ Complete	☐ Incomplete	☐ Non Applicable
b	Safe user access in front of W4-FCT	☐ Complete	☐ Incomplete	☐ Non Applicable
c	Safety bollards where needed	☐ Complete	☐ Incomplete	☐ Non Applicable

Ward Check List

1 W4-FCT Configuration

a	3121 Signal Strength at the FCT: [____db]　4121 Signal Strength at the FCT: [____db]			
b	5-Hose Bd., be sure unused hose switches are turned to OFF	☐ Complete	☐ Incomplete	☐ Non Applicable
c	Check for proper relay configuration for each hose	☐ Complete	☐ Incomplete	☐ Non Applicable
d	All hoses wired to after reset for VIT operation	☐ Complete	☐ Incomplete	☐ Non Applicable
e	5-Hose Bd., "JP34" jumper configured for proper hose numbers	☐ Complete	☐ Incomplete	☐ Non Applicable
f	IP Address pointing to proper server after test	☐ Complete	☐ Incomplete	☐ Non Applicable
g	Pumps labeled accordingly	☐ Complete	☐ Incomplete	☐ Non Applicable
h	Verify Script	☐ Complete	☐ Incomplete	☐ Non Applicable
i	Verify and confirm pulse ratio matches database	☐ Complete	☐ Incomplete	☐ Non Applicable

2 W4 Communications

a	RF Comm: Check antenna(s) for proper installation	☐ Complete	☐ Incomplete	☐ Non Applicable
b	Confirm network connection to terminal	☐ Complete	☐ Incomplete	☐ Non Applicable
c	Download terminal: Check for proper OS and configuration	☐ Complete	☐ Incomplete	☐ Non Applicable

3 Dispenser Test

a	Check each hose for [Enable, Off Hook, Pulse] logic	☐ Complete	☐ Incomplete	☐ Non Applicable
b	5-Hose board pump control switch. [Auto, Off, Bypass]			
i	Off: Hose will not pump	☐ Complete	☐ Incomplete	☐ Non Applicable
ii	Bypass: Hose will pump anytime it is turned on	☐ Complete	☐ Incomplete	☐ Non Applicable
iii	Auto: Hose will only pump when enabled by card or RF-VIT	☐ Complete	☐ Incomplete	☐ Non Applicable
c	Verify gallons pumped with host for each hose:			

i	Vehicle #	Employee #:		Gallons:
ii	Vehicle #	Employee #:		Gallons:
iii	Vehicle #	Employee #:		Gallons:
iv	Vehicle #	Employee #:		Gallons:
v	Vehicle #	Employee #:		Gallons:
vi	Vehicle #	Employee #:		Gallons:
vii	Vehicle #	Employee #:		Gallons:
viii	Vehicle #	Employee #:		Gallons:
ix	Vehicle #	Employee #:		Gallons:
x	Vehicle #	Employee #:		Gallons:

d	Check server for transactions	☐ Complete	☐ Incomplete	☐ Non Applicable
e	Check for proper fuel type for each hose	☐ Complete	☐ Incomplete	☐ Non Applicable
f	Hoses with ESV. Check for back feed wiring or cross wiring from hoses on same tank	☐ Complete	☐ Incomplete	☐ Non Applicable

4 RF-VIT

a	RF-VIT terminal antenna installation is proper	☐ Complete	☐ Incomplete	☐ Non Applicable
b	RF-Hose module installed correctly on nozzle	☐ Complete	☐ Incomplete	☐ Non Applicable
c	RF-Hose module programmed correctly with JettScan	☐ Complete	☐ Incomplete	☐ Non Applicable
d	Check hose operation with test CANceiver, VIT, Tag or JettScan	☐ Complete	☐ Incomplete	☐ Non Applicable

5 TLS Tank Monitor

a	Check TLS for proper setup and programming	☐ Complete	☐ Incomplete	☐ Non Applicable
b	Check communications between TLS and Server	☐ Complete	☐ Incomplete	☐ Non Applicable
c	Verify tank level data from TLS	☐ Complete	☐ Incomplete	☐ Non Applicable

6 Review with site supervisor/representative

a	Confirm with site representative	☐ Complete	☐ Incomplete	☐ Non Applicable

NOTES:

SIGNATURE: _____

SITE SUPERVISOR / REPRESENTATIVE   Date

I acknowledge that installation has been completed

SIGNATURE: _____

E. J. WARD, INC. TECHNICIAN   Date

Contact E.J. Ward

Ward's mission is to provide industry leading technical support by ensuring all issues are promptly and wholly resolved. You can speak with a highly skilled Technical Support Specialist between 8am-5pm Central Time, Monday through Friday. If you contact Ward during non business hours, a Specialist will return your call the following business day.

Contact Ward for questions related to:
- Installation of new hardware or software
- Troubleshooting malfunctions
- Ordering new or replacement hardware

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