

# Bid Specifications and General Description

## OPW Petro Vend 100<sup>®</sup> Fuel Control System

## **Part 1. General Overview**

### **1.1 Summary**

This document describes the minimum required technical and compliance specifications for prospective bidders for a stand-alone, pedestal-mounted fuel-control system that can be used by small or mid-sized fleets that require one- or two-hose control at unattended fueling sites.

### **1.2 Approval, Certification and Accreditation**

This fuel-control system complies with Part 15 of the Federal Communications Commission (FCC) Rules & Regulations. Operation is subject to the following two (2) conditions:

- The device may not cause harmful interference.
- The device must accept any interference received, including interference that may cause undesired operation.

The fuel-control system has attained the following Certifications and Listings:

- Electronic Testing Labs (ETL), per Underwriters Laboratories UL 1238
- Electronic Testing Labs Canada (ETLC), per CSA 22.2

### **1.3 Quality**

The fuel-control system shall be manufactured by a company with International Standards Organization (ISO-9001) accreditation.

## **Part 2. System Description**

The following technical specifications provide the specific parameters, requirements and capabilities to which the fuel-control and supporting system components shall comply.

The fuel-control system shall consist of a fuel-site controller that governs system operation. It is a turnkey system that allows for immediate use after installation without any configuration changes. The default configuration allows for all purchased cards to be configured with unique PINs by the user on the first use of the card. After configuration of the card's PIN, a second swipe of the card will provide access to authorized fuels dispensed by the system.

### **2.1 Technical Specifications**

#### **A. Dimensions**

The Cabinet shall have a width of 14.25" (36.2 cm), a height of 10.75" (27.3 cm), and a depth of 9.75" (24.8 cm).

The Pedestal shall have a width of 14.0" (35.6 cm), a height of 48.0" (122 cm), and a depth of 9.0" (22.9 cm).

#### **B. Power Requirements**

The fuel-control system's power requirements shall be 115/230 VAC, 50/60 Hz, and 200 watts maximum.

#### **C. Operating Temperature**

The fuel-control system shall operate at a temperature range of -40°F to 122°F (-40°C to 50°C).

#### **D. Graphics Display**

The fuel-control system shall have a 5.0" (12.7 cm) monochrome graphics display.

#### **E. Enclosure & Pedestal**

The fuel-control system shall be constructed of painted steel.

#### **F. Memory**

The fuel-control system's memory shall include:

- Standard tracking of up to 50 proprietary cards
- Expandability to 250 proprietary cards
- Storage of a virtually unlimited number of transactions on an optional USB flash drive

#### **G. Additional Components**

The fuel-control system's mechanical pump relay board shall be standard for one (1) hose and expandable up to two (2) hoses and have the following characteristics:

- Power rating shall be 240 VAC, 20 A, 3.0 Hp maximum
- "In-Use" detection shall be Voltage Sense 120-240 VAC or Handle Switch
- Pulser type shall be single-channel
- Pulser input shall be mechanical (contact) or electronic (5-12 VDC)
- Divide rate shall be 1:1 – 1,000:1; 1-pulse increments
- Maximum pulse speed at 50% duty cycle shall be 6,000 mechanical; 100,000 electronic

### **2.2 Security**

The fuel-control system shall have a Manager Mode allowing administrators the right to view and modify data.

Security measures that prevent the theft of fuel, use of invalid key cards, misuse of PINs and unauthorized entry into the system shall also be available.

### Part 3. System Capabilities & Features

The following provides the capabilities and features the fuel-control system shall possess.

#### 3.1 General

- The system shall be a turnkey system
- The system shall feature field-upgradeable software
- The system shall track fueling by card or pump total with specific transaction data optional
- The system shall have menu-driven configuration that takes place at the terminal
- The system shall control up to two (2) hoses for mechanical pumps
- The system shall use selectable PINs from three (3) to six (6) digits in length
- The system shall only allow authorized users to access fuel
- The system shall have hose-based quantity restrictions
- The system shall have manual system bypass control that enables pump relays and the recording of dispensed fuel volumes during a specific time
- The system shall have a monochrome graphic display
- The system shall have an optional dual-head magnetic card reader
- The system shall have an optional HID proximity key-fob reader
- The system shall have an optional USB flash drive for transaction storage
- The system shall offer:
  - adjustable programming parameters
  - the ability to view card and pump totals
  - the ability to transfer all data to a USB flash drive via Manager Card access in on-screen manager modes

#### 3.2 Installation

The fuel-control system may be installed above the hazardous area with installation of the terminal's associated pedestal. The pedestal shall be mounted in the hazardous area, if the following conditions are met:

- When the pedestal is equipped with a knockout plate, this plate must be above the hazardous area
- All pedestal conduit seal-offs must be above the hazardous area
- Any unused knockout holes that have been removed must be sealed

#### 3.3 System Configuration

##### A. DIP Switch Configuration

The operator shall be able to program the DIP Switch parameters for the mechanical pump relay board. These parameters shall include:

- Operation Mode (SW 1, Position 1-2) shall allow the mechanical pump relay board to be placed into one of two operational states:
  - Normal Operation: With switches in the "off" position, the fuel-control system's relays are energized only when a user has been authorized to fuel.
  - Manual Override: With switches in the "on" position, the fuel-control system's relays are energized continuously allowing users to fuel without authorization.
- Pulsar Type (SW 1, Position 3) shall match the electrical output of the attached pulser and support two types of pulsers:
  - Active: Pulsers shall supply a low-voltage signal to the mechanical pump relay board
  - Passive: Pulsers shall either contain switch contacts or have "open collector" transistor outputs
- Pulsar Filter (SW 1, Position 4) shall match the type of pulser attached:
  - Electronic: Shall typically have shutter wheels and optical detectors
  - Mechanical: Shall have switches that open and close with each pulse
- In-Use Sense (SW 1, Position 5) shall be based on how the pump is wired to inform the mechanical pump relay board that the pump is in use There are two types of In-Use Sense:

- Voltage: Shall use a line-voltage return wire from the solenoid valve or pump motor wired to the In-Use terminal on the high-voltage side of the mechanical pump relay board
- Handle Sense: Shall use a contact closure input wired to the “Flow” terminal on the low-voltage side of the mechanical pump relay board

## **B. Custom Configuration**

The fuel-control system shall have optional, configurable items that are intended for advanced, site-specific requirements:

- Pump Restrictions: The system shall allow two (2) methods to restrict the use of pumps:
  - Card-by-card
  - Range-of-cards
- Keyboard Entry Only/Invalidating Cards: The system shall allow for optional keyboard entry of card numbers
- Invalidating Card after Three Bad PIN Entries: The system shall invalidate a card if its PIN is entered incorrectly three (3) consecutive times
- No PIN Entry: The system shall offer the ability to eliminate the need for PIN prompts in order to access the system
- Eliminating Pump Number Prompt when Only One Pump is in Use: The system shall allow the “Enter Pump Number” prompt to be eliminated when only one (1) pump is controlled by the system

## **C. Terminal Setup/Test Menu**

The system shall allow access to the Terminal Setup/Test Menu when position 1 of the dip switch is turned on and the system is reset.

The Terminal Setup/Test menu shall consist of the following options:

- Display Menu: Shall allow for the ability to access configuration settings pertaining to the appearance of information on the display screen, including:
  - Mode: Shall indicate that text and images appear in a dark color on a light background
  - Normal Test Screen: Shall allow a test of the display screen in “Normal” mode
  - Inverse Screen Test: Shall allow a test of the display screen in “Inverse” mode
- Keypad Menu: Shall allow access to the Numeric/Function Keypad Test, which allows verification that the keypad is working correctly
- Reader Menu: Shall allow access to configurable settings for the card reader in use by the system, including:
  - Select Reader: Shall allow for the ability to choose the type of card reader with which the system is equipped (None, Magnetic or Proximity)
  - Reader Status: Shall allow for the ability to test the functionality of the system’s card reader
- Tones Menu: Shall allow for setup and testing of the sound tones played by the system
- System Network Number Menu: Shall allow the ability to set a number that identifies the system’s network
- Miscellaneous Menu: Shall allow miscellaneous test and restore options for the system, including:
  - Lights Test: Shall allow the ability to test the LED light above the keyboard
  - DIP Switch Test: Shall allow confirmation that the DIP Switches are working properly
  - RAM Loopback Test: Shall allow the performance of an internal memory test of the system board
  - USB Test: Shall allow the ability to test both of the USB connections on the main board
  - Mechanical Pump Relay Board Test: Shall only be performed at the factory
  - Restore Factory Defaults: Shall allow for the ability to clear all configured parameters within the terminal side of the system’s configuration and restore all default, pre-programmed settings

- Pump Control Menu: Shall allow the following activities to be performed:
  - Pump Control: Shall allow for the ability to disable pump control from within the terminal
  - Pump Simulator Mode: Shall allow for the ability to test the system when pumps are not available
  - Fixed Pump Number: In a single-pump system, shall allow the elimination of the “Enter Pump Number” prompt
- Software Updates: Shall allow for firmware updates to the system from a USB key

#### **D. Management Menu**

Shall consist of configurable settings and allow for the management of the system’s fuel-site controller. Options available in the Management Menu shall include:

- Site Management: Shall consist of the following items:
  - Site ID Number: Shall be a three (3)-digit number that identifies the fueling site for reporting purposes
  - Date/Time Setup: Shall allow for the set up of various Date/Time parameters in the system, including:
    - Date Format: Shall allow the ability to choose the format for which the date is displayed
    - Time Format: Shall allow the ability to choose between a 12- and 24-hour time format
    - Open Time: Shall allow the ability to choose the time of day the fuel site will open for fueling
    - Close Time: Shall allow the ability to choose the time of day the fuel site will close for fueling
    - Light On: Shall allow the ability to choose the time of day the lights will turn on
    - Light Off: Shall allow the ability to choose the time of day the lights will turn off
    - Set Date/Time: Shall allow for the ability to set the current hours, day, month, and year for the system’s internal clock
    - Set Year: Allows the ability to set the current year within the system
  - Keyboard: Shall display the following keyboard-related configuration items:
    - Allow Keyboard Entry: Shall allow for the manual entry of card information
    - Prompt Time-Out: Shall allow the ability to choose how long prompts will be displayed before timing out
    - Error Message Time-Out: Shall allow the ability to choose how long error messages will be displayed before timing out
  - Manager Cards: Shall display the following card-related configuration items:
    - Reset Card 1: Shall allow the ability to reconfigure manager card 1
    - Reset Card 2: Shall allow the ability to reconfigure manager card 2
    - Force Manager PIN: Shall ensure that if proprietary card is disabled the manager card can force enter PIN
    - Lock Reset: Shall allow manager to reconfigure manager menu PIN in event second manager card needs to be locked out
  - Set Options: Shall display the current purchased system options, SIMM serial number and Electronic Serial Number (ESN)
  - Site Operation when USB not present: Shall allow the ability to choose whether the site will shut down if the internal USB is not present to record transactions
- Pump Management: Shall allow the ability to edit configuration settings for the following items:
  - Select Pump Terminal: Shall not be selectable, with a default value of 1
  - Select Relay Position: Shall allow the ability to choose the relay position associated with the pump to be configured
  - Configure Pump: Shall allow the ability to configure the following parameters:
    - Pump Number: Shall allow the ability to choose the number to be entered when selecting a fueling pump; values shall be from 1-99
    - Pulse Count: Shall default to 100, but can be changed to accommodate pulse counts coming in from the pump, per unit

- Max Quantity: Shall allow the ability to choose the maximum amount of fuel allowed in a single transaction; the default value shall be 15 gallons
  - Ignore Handle: Shall allow the ability to remove the pump handle from the pump before swiping a card
  - Set Totalizer: Shall allow the ability to set the value at which the totalizer is to be displayed on the pump
  - Pump Sentry: Shall tell the system that three (3) consecutive zero-quantity transactions indicate a bad pulser, disabling the pump
  - Handle: Shall indicate the time (in seconds) the pump will remain active without a handle sense; values shall range from 1-999 seconds
  - First Pulse: Shall indicate the time (in seconds) the pump will remain active after sensing the handle before the first pulse; values shall range from 1-999 seconds
  - Missing Pulse: Shall indicate the time (in seconds) the pump remains active without detectable pulses; values shall range from 1-999 seconds
  - Total Transaction: Shall indicate the time (in minutes) that fueling is allowed
- Proprietary Card File (PCF) Management: Shall allow for the management of card data associated with the system and include the following:
  - Setup PCF: Shall allow the ability to configure the settings for pump restrictions and PIN-setup configurations, including:
    - Select Card: Shall allow the ability to determine one (1) specific card for selecting allowed pumps
    - Select Card Range: Shall allow the ability to determine a range of cards for selecting allowed pumps
    - Select Allowed Pumps: Shall display all configured pumps, which allows for the ability to enable/disable pumps according to previously chosen pumps
    - Disable PIN Entry: Shall allow the ability to disallow PIN prompts for cards
    - Set Specific PIN: Shall allow the ability to set each PCF PIN on a card-by-card basis
    - All User Selectable: Shall allow the ability to reset all cards to user-selectable
    - Card Invalid After Three Bad Entries: Shall allow the ability to lock cards after three (3) incorrect PIN entries for a single swipe
  - View Restrictions: Shall display a list of all programmed pump restrictions
- Clearing Totals: Shall allow for the deletion of all totals currently stored on the fuel-site controller. The categories for deletion are:
  - All Cards
  - All Cards and Pumps
  - Single Cards
  - Single Pump
  - Bypass Totals
- Reporting: Shall allow for the ability to view reports for the various functions of the system, including:
  - View Pump Totals: Shall show the fuel-volume totals for each pump
  - View Card Totals: Shall show the totals for all fueling cards
  - View Bypass Totals: Shall show all transactions that occurred while the pumps were in software-controlled bypass mode
  - Pump Totals to USB: Shall create a CSV-formatted file that lists all pump totals
  - Card Totals to USB: Shall create a CSV-formatted file that lists all card totals
  - Transactions to USB (optional): Shall show all transactions stored on the internal USB key that will be transferred to the external USB key

#### **Part 4. Manufacturers Support and Service**

- 4.1** The manufacturer shall provide technical phone support to Authorized Warranty Service Organizations, Authorized Distributors and their service personnel.
- 4.2** The manufacturer shall require training and certification for all of its authorized distributors and installers.
- 4.3** The manufacturer shall provide certification information on authorized distributors and installers.
- 4.4** The manufacturer shall offer re-certification training to keep authorized distributors and installers updated with current product information, installations and procedures.
- 4.5** The distributor or service organization shall be available to offer on-site training of company maintenance personnel on installation, programming and troubleshooting of the system.
- 4.6** The manufacturer shall offer replacement parts to authorized service organizations for servicing systems.
- 4.7** The manufacturer shall offer overnight shipping on replacement parts to minimize system downtime.
- 4.8** The manufacturer will supply, upon request, a formal list of all authorized and certified distributors and service contractors for sales, support and installation.

## **Part 5. Warranty**

- 5.1** The manufacturer warrants that all Fuel Control Systems supplied by the manufacturer to the Original Purchaser will be free from defects in material and/or workmanship under normal use and service for a period of 12 months from the date of installation or 18 months from the date of shipment from manufacturer. Additionally, the manufacturer warrants that all upgrades and replacement parts (new and remanufactured) supplied by the manufacturer will be free from defects in material and workmanship under normal use and serviced for a period of 90 days from the date of installation or for the remainder of the system's original warranty, whichever is greater, as set forth in the first sentence of this statement. The foregoing warranties will not extend to goods subjected to misuse, neglect, accident, or improper installation or maintenance or which have been altered or repaired by anyone other than the manufacturer or its authorized representative. The buyer's acceptance of delivery of the goods constitutes acceptance of the foregoing warranties and remedies, and all conditions and limitations thereof.