

Electronic Fuel Management Systems

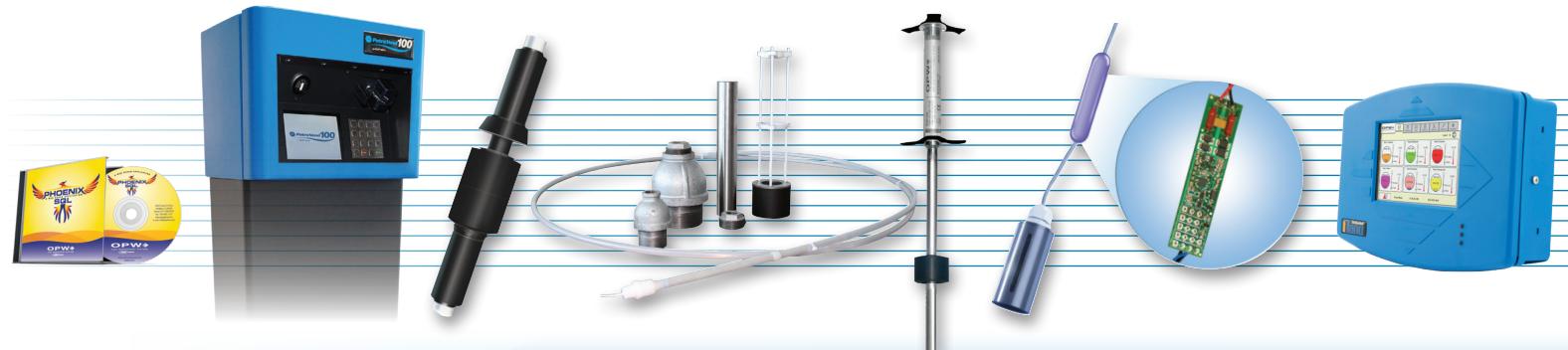
Making Sure You're in Complete Control, From Anywhere, All The Time.

Innovation is a defining value principle at OPW Fuel Management Systems (FMS).

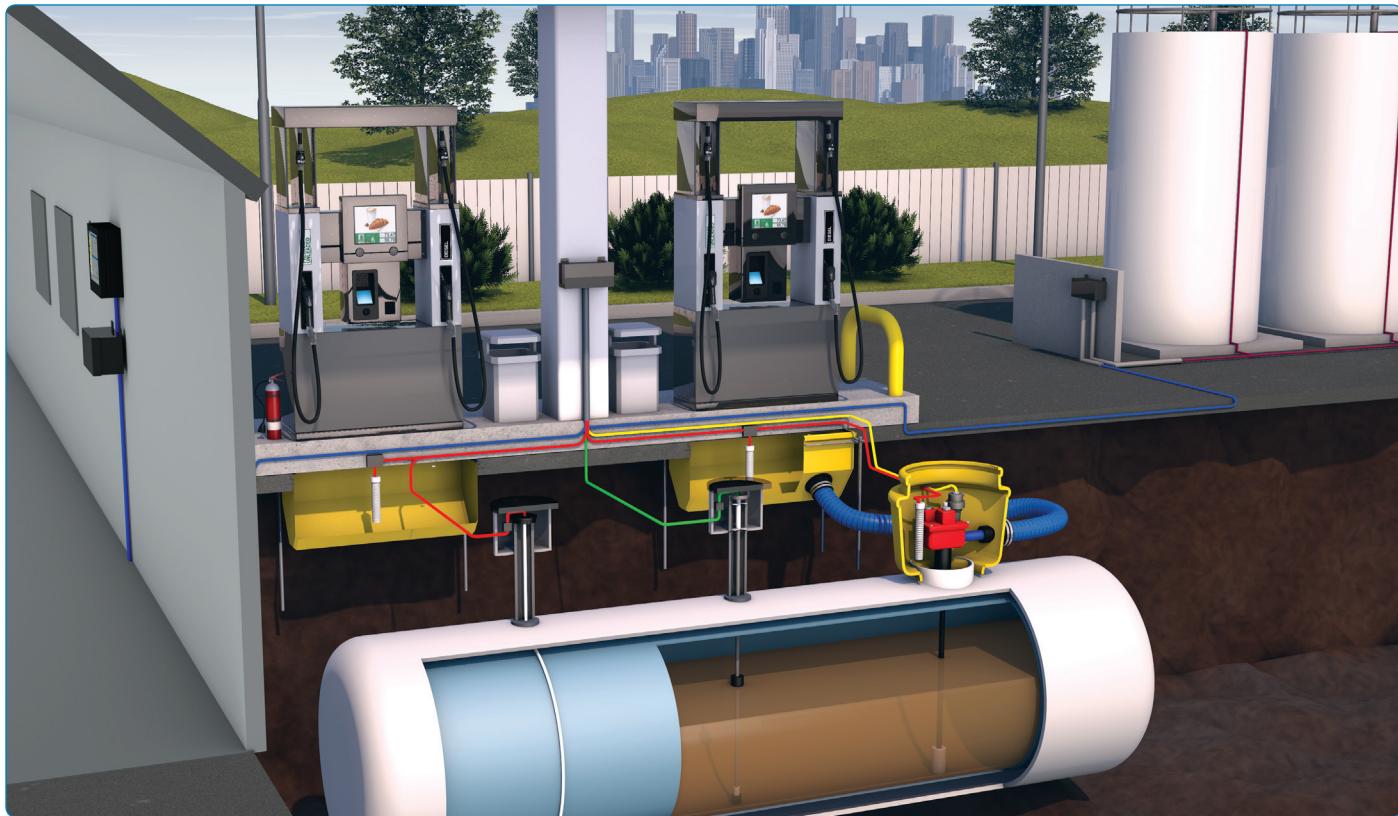
OPW FMS provides the industry's most innovative tank gauging systems and the most reliable and accurate fuel control systems to retail and commercial operations all over the world. OPW's leading tank monitoring systems, including the SiteSentinel® Nano®, Integra 100™, Integra 500™ and iTouch™, and OPW's Petro Vend brand of fuel island terminals and systems, ensure that you know exactly how much fuel you have and where it is going.

For more than 50 years, OPW FMS has delivered product excellence and a broad line of fuel control and tank gauge solutions engineered to streamline operations, reduce fuel losses and improve compliance management. From OPW's powerful tank gauging and proprietary multi-drop tank-monitoring technology, to its durable cardlock systems and advanced Phoenix® fuel management software, OPW FMS provides a portfolio of solutions engineered to be both cutting edge and cost saving.

OPW FMS technologies result in business-optimizing, customer-centric retail and commercial fueling solutions unlike any other.



OPW Tank Gauging and Fuel Controls



Tank Gauging

- SiteSentinel® Nano® Console 240-241
- SiteSentinel® Integra 100™ Console 242-243
- SiteSentinel® Integra 500™ Console 244-245
- SiteSentinel® iTouch™ Console 246-247
- The VSmart Module 248-249
- Model 924B Probe 250-251
- Model 924B Inventory-Only Probe 252-253
- Model 7100 AST Flex Probe 254-255
- IntelliSense™ Technology 256-257
- Aqueous Ethanol Float Sensor 258-259
- Density Measurement Float 260-261
- Model 327 Volumetric Line Leak Detector 262-263

Fuel Control

- Petro Vend Fuel Control Systems Overview 264
- FSC3000™ Fuel Site Controller 266-267
- Phoenix® 268-269
- Petro Vend 100® 270-271
- C/OPT™ 272-273
- FIT500™ 274-275
- K800™ Hybrid 276-277
- K800™ 278-279
- AFC™ 280-281
- Pulser 281
- Dispenser Terminal Control 282-283
- OPW Communications Technologies 284-285

Comprehensive Fuel Management



1 BEST-IN-CLASS SITESENTINEL® INTEGRA 100™, INTEGRA 500™, NANO® OR ITOUCH™ ITOUCH™ CONSOLE



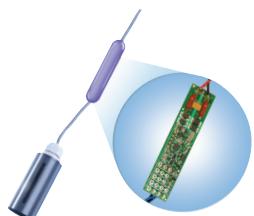
2 BEST-IN-CLASS VSMART MODULE



3 BEST-IN-CLASS LINE LEAK DETECTION



4 BEST-IN-CLASS AQUEOUS ETHANOL FLOAT SENSOR



5 BEST-IN-CLASS INTELLISENSE™ SMART SENSORS



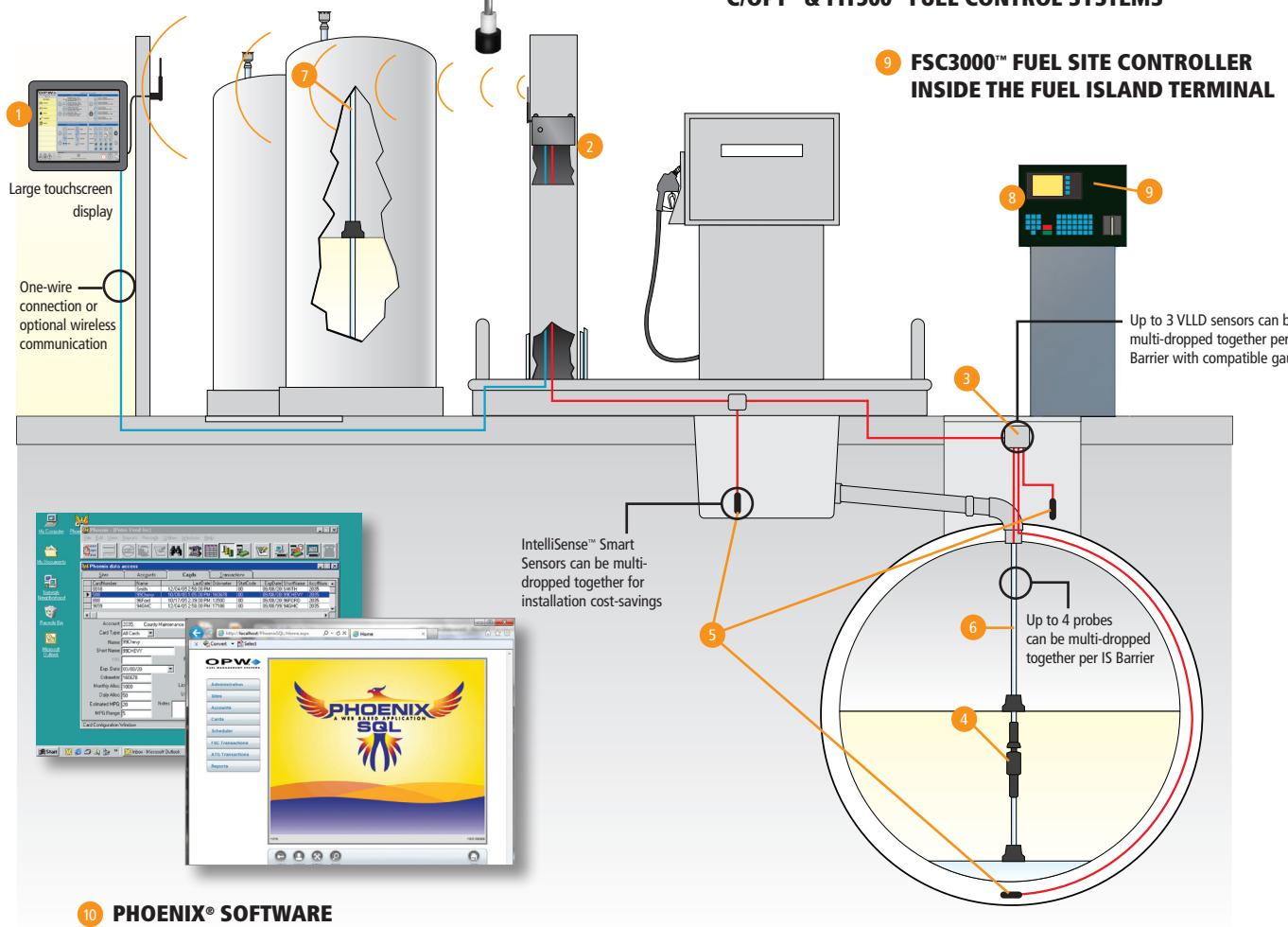
6 BEST-IN-CLASS 924B MAGNETOSTRICTIVE PROBE



7 BEST-IN-CLASS AST FLEXIBLE PROBE

8 PETRO VEND 100®, DTC, K800™ HYBRID, C/OPT™ & FIT500™ FUEL CONTROL SYSTEMS

9 FSC3000™ FUEL SITE CONTROLLER INSIDE THE FUEL ISLAND TERMINAL



OPW Tank Gauging



Tank Gauging

- SiteSentinel® Nano® Console.....240-241
- SiteSentinel® Integra 100™ Console242-243
- SiteSentinel® Integra 500™ Console244-245
- SiteSentinel® iTouch™ Console246-247
- The VSmart Module.....248-249
- Model 924B Probe250-251
- Model 924B Inventory-Only Probe.....252-253
- Model 7100 AST Flex Probe254-255
- IntelliSense™ Sensors256-257
- Aqueous Ethanol Float Sensor258-259
- Density Measurement Float260-261
- Model 327 Volumetric Line Leak Detector262-263



SiteSentinel® Nano® Console

OPW's SiteSentinel® Nano® Console provides simplified, cost-effective inventory and compliance monitoring for retail and commercial fuel sites. With an intuitive touchscreen interface, user-friendly data display settings and sensor support, the Nano is an easy-to-use, right-sized tank-monitoring console for small and mid-size fuel sites.

Featuring SiteSentinel® IntelliSense™ Mixed Multi-drop technology, the Nano reduces installation costs by minimizing the wiring and labor needed for a quick site installation. The gauge can monitor up to 12 probes or 24 smart sensors, or a combination of both.

The Nano provides accurate, real-time inventory data and reporting through a Web-based interface that enables remote management, training, emergency support and upgrades. The console's large touchscreen displays inventory, compliance and delivery statuses, as well as warnings and alarms. User-friendly software provides a "Calendar" view, while a "Favorites" list enables quick recall of the most-used filters, making the Nano one of the most user-friendly tank gauges in the industry.

SiteSentinel® Nano® Console Features

NEW! FEATURES

Part of the
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Sentinel®**
family of products



Intuitive

The gauge's color touchscreen provides easy access to inventory, compliance, delivery, warnings and alarms.



Cost-Effective

With streamlined compliance monitoring and cost-saving multi-drop technology, the Nano delivers the performance sites need at a cost-effective price point.



User-Friendly

The Nano's user-friendly software offers a calendar view and a "Favorites" list for quick recall of the most-used filters.



Convenient

Online access enables off-site training as well as remote monitoring of critical inventory and compliance information.

- ◆ Provides streamlined leak monitoring for sites with double-wall tanks, lines
- ◆ Local or remote PC connection
- ◆ A "Favorites" list enables quick recall of the most-used filter settings

- ◆ Calendar view shows both tank and sensor alerts, including deliveries, compliance, alarms and warnings that can be filtered by event and/or tank or sensor
- ◆ Monitors up to 4 probes (up to 12 per gauge) or 12 sensors (up to 24 per gauge) per barrier position, or a combination of both
- ◆ Mixed multi-drop technology allows for probes and sensors to be connected to one wire, significantly reducing installation costs
- ◆ Displays gross- or net-corrected tank volume, ullage, product volume and water, product level and water level, and product temperature for individual tanks
- ◆ Able to schedule reports to automatically run daily, weekly, monthly or annually
- ◆ Programmable Automatic Leak Detection performs daily, weekly, and monthly static leak tests
- ◆ Alarm notifications issued via email and SMS
- ◆ Console is configured through an HTML web interface. No added hardware or proprietary software is needed for remote connections

Listings and Certifications



Additional Features

- ◆ Optional Tank Overfill Alarm
- ◆ With the ability to have 4 optional OM4 Output Modules that each offer 4 relays, functionality is expanded to a total of 16 relays - including 2 on board relays
- ◆ Reports include Current Inventory, Delivery History, Events in Progress, Event History, Leak Test
- ◆ Auto Detect feature shows the number of devices connected to each of the internal barrier positions after initial set-up – even if wiring configurations change
- ◆ Includes address book of contacts for easy reporting configuration via email and SMS
- ◆ Networking screen allows user to select either a Static connection or DHCP
- ◆ Configurable to meet localized settings (Date/time formats and English/metric units)
- ◆ Communicates with most industry standard third-party POS protocols

- ◆ Console is configured through an HTML web interface. No added hardware or proprietary software is needed for remote connections

System Alarms and Events

In-Tank Alarms:

- ◆ High, Low Temperature
- ◆ Reconciliation Theft
- ◆ Fail RTD / Thermistor
- ◆ Delivery Start / Finish
- ◆ In-Tank Leak Test Failure
- ◆ In-Tank Test Warning
- ◆ Product Level
- ◆ Water Level
- ◆ Probe Failure

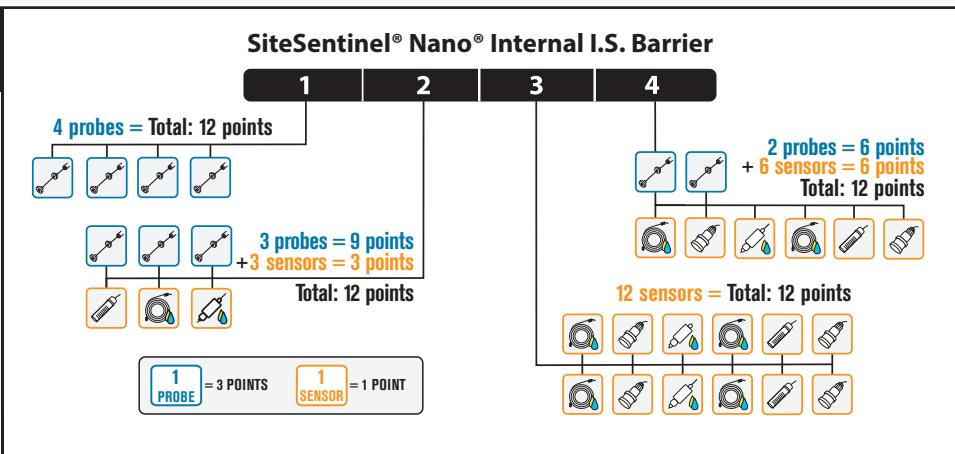
Sensor Alarms:

- ◆ Sensor alarms will provide hydrocarbon and water alerts (dependent on type of sensor connected)

Specifications

- ◆ Dimensions: 8.3 in H x 12.8 in W x 2.4 in D (21 cm H x 32.5 cm W x 6 cm D)
- ◆ Power: 120/240 VAC +/-10%, 50/60 Hz, 30 W
- ◆ Operating Temperature Range: 32°F to 122°F (0°C to 50°C)
- ◆ Display: 7.1 inches (18 cm) color LCD touchscreen display
- ◆ Graphical user interface
- ◆ Printer: External USB
- ◆ Standard Alarms: Buzzer, Light and Acknowledge
- ◆ Optional Alarms: External Tank Alert (internal relay)
- ◆ Alarm Notifications: Email, SMS
- ◆ Network Connectivity: DHCP/ static addressable RJ-45 Ethernet ports, supports corporate and local LANs
- ◆ Communication Ports:
 - One (1) RS-232 communication port
 - One (1) RS-485 communication port
 - One (1) RS-422 communication port
 - One (1) Ethernet port
 - Two (2) USB ports
 - Two (2) Internal inputs
 - Two (2) Internal outputs

OPW Mixed Multi-drop Technology
<p>OPW's mixed multi-drop technology allows probes and sensors to be run on one wire back to a tank gauge. This leads to substantial savings on installation labor and wire costs.</p> <p>With mixed multi-drop, the SiteSentinel® Nano® can hold up to 12 probes or 24 sensors in any number of combinations. Possible combinations are driven by a point system: one probe = three points; one sensor = one point.</p> <p>Each of the Nano's four barrier positions can hold a total of 12 points, which can be obtained by 4 probes, or 12 sensors or a combination of probes and sensors.</p>



NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

SiteSentinel® Integra 100™ Console

Provides complete tank monitoring, inventory management and environmental-compliance testing through the incorporation of the latest computer technology, which allows users to view data remotely from anywhere in the world.

The SiteSentinel® Integra 100™ has been designed to lower installation costs by reducing the number of wires to the probes and sensors that are connected to its internal I.S. module. In addition, all digital devices are automatically detected and configured by using the touch-screen interface, making it one of the easiest ATG systems in the industry to install, configure and use.

The SiteSentinel® Integra 100™ console has been designed to reliably provide connectivity now and in the future. Available ports include: Ethernet, USB RS-232 and modem. It is also one of the easiest tank gauges to use, requiring the least amount of training and menu navigation to access critical data.

SiteSentinel® Integra 100™ Console Features

Part of the
**Site
Sentinel®**
family of products



Easy To Connect



Easy To Use

- ◆ Large color touch-screen display gives one-touch access to real-time inventory data, delivery status, alarm conditions and leak-detection information – all accessible from a single cockpit view
- ◆ Statistical Leak Detection (SLD) – optional advanced leak-testing technology – provides continuous automatic in-tank leak-detection operation, with no need to schedule test times or shut down tanks
- ◆ Programmable Automatic Leak Detection (ALD) performs daily, weekly, monthly and annually required static leak tests when the system detects a quiet time
- ◆ Integral 4-channel multi-drop I.S. module
- ◆ Internal power supply works between 96-264 VAC, covering all global requirements
- ◆ International user-friendly icons follow guidelines in MIL-STD-1472
- ◆ Displays gross and net-corrected tank volume, product level, water level and temperature for individual tanks
- ◆ Configurable to meet localized settings (Date/Time formats and Metric/English units)
- ◆ Provides programmable correction factors for restrapping tanks (2,000 points)
- ◆ Includes address book of contacts to whom the unit can send text messages, fax and/or emails on any alarms and events
- ◆ Able to schedule reports to automatically run at specific times
- ◆ Communicates with industry-standard, third-party POS protocol and displays format commands
- ◆ Compliance calendar accessible with a single touch
- ◆ Non-volatile memory for event storage up to 10 years



Convenient



Savings

Listings and Certifications



1180



Additional Features

- ◆ Monitors up to 16 probes or 64 sensors, or a combination
- ◆ Optional Tank Overfill Alarm
- ◆ Available output module provides multi-purpose relays, which can be used for outputs such as overfill alarms, sensor alarms or STP positive shutdown
- ◆ Optional density measurement sensor has the capability to monitor product quality
- ◆ Downloadable and Flash upgradeable software for easy updates

Leak Test Certification

EPA Static Leak and Continuous Test Certified (ATGS & CITLDS Methods):

- ◆ 0.2 gph (0.76 L/hr) Statistical Leak Test at 397,000 gallons (1,502,809 liters)/month throughput for single-tank, 2-tank or 3-tank manifold installations with a 30,000-gallon (113,562 liters) combined maximum capacity
- ◆ 0.2 gph (0.76 L/hr) Static Leak Test
- ◆ 0.1 gph (0.38 L/hr) Static Leak Test

Specifications

Dimensions: 14.5 inch W x 12 inch H x 4 inch D (37 cm x 30 cm x 10 cm)

Operating Temperature: 32°F to 122°F (0°C to 50°C)

Humidity: Non-Condensing (Max 95%)

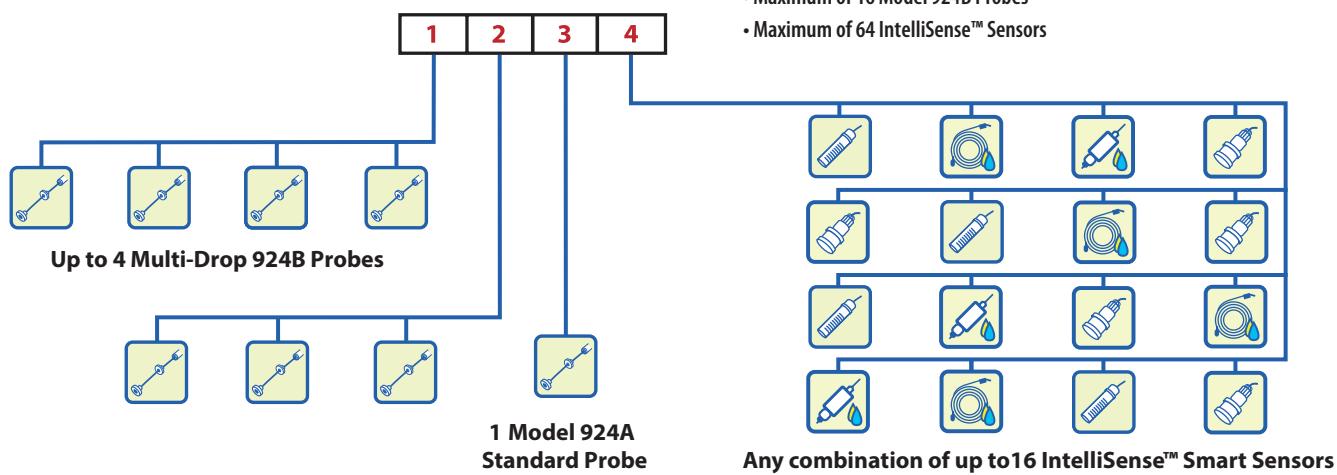
Typical Mounting Location: Indoor, Non-Hazardous Area

Power Requirements: 96-264 VAC, 50/60 Hz

Communication Ports: One (1) x Ethernet, Two (2) x RS-232, Two (2) x USB, Two (2) internal USB, One (1) x modem (optional)

Standard one (1) output and one (2) input internal relay connection

SiteSentinel® Integra 100™ Internal I.S. Barrier



NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

SiteSentinel® Integra 500™ Console

The SiteSentinel® Integra 500™ tank gauge offers the industry's most comprehensive tank monitoring capabilities including inventory management, environmental compliance testing and remote access to real-time inventory data.

The Integra 500 represents the fueling industry's most powerful tank gauge. With the ability to communicate with a wireless VSmart, which has an external NEMA 4-Class wiring enclosure that can be mounted on the forecourt, the Integra 500 can monitor more probes and sensors than any gauge on the market.

The tank gauge's Automatic Calibration and Reconciliation ensures in-depth and up-to-the-moment fuel monitoring. Optional Statistical Leak Detection offers continuous automatic in-tank leak-detection operation, while programmable Automatic Leak Detection will perform daily, weekly, monthly and annually required static leak tests when the system detects a quiet time.

The Integra 500 also offers cost-savings through multi-drop technology, which decreases installation costs by reducing the number of wires to the probes, sensors and leak-detection devices that are connected to the gauge's internal I.S. module.

A large color touch-screen provides one-touch access to a web-based interface, which provides online access to inventory information and facilitates remote training. In addition, all digital devices are automatically detected and configured, making the Integra 500 one of the most user-friendly tank gauges in the industry.

SiteSentinel® Integra 500™ Console Features

NEW!

Part of the
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family of products



Easy To Connect



Easy To Use



Convenient



Savings

- ◆ Large color touch-screen display gives one-touch access to real-time inventory data, delivery status, alarm conditions and leak-detection information – all accessible from a single cockpit view
- ◆ Statistical Leak Detection (SLD) - optional advanced leak-testing technology - provides continuous automatic in-tank leak-detection operation, with no need to schedule test times or shut down tanks
- ◆ Programmable Automatic Leak Detection (ALD) performs daily, weekly, monthly and annually required static leak tests when the system detects a quiet time
- ◆ Optional Integral 4-channel multi-drop I.S. module
- ◆ Capable of monitoring 32 probes or more and 256 sensors
- ◆ Internal power supply works between 96-264 VAC, covering all global requirements
- ◆ International user-friendly icons follow guidelines in MIL STD - 1472
- ◆ Displays gross and net-corrected tank volume, product level, water level and temperature for individual tanks
- ◆ Configurable to meet localized settings (Date/Time formats and Metric/English units)
- ◆ Provides programmable correction factors for restrapping tanks (2,000 points)
- ◆ Includes address book of contacts to whom the unit can send text messages, fax and/or emails on any alarms and events
- ◆ Able to schedule reports to automatically run at specific times
- ◆ Communicates with industry-standard, third-party POS protocol and displays format commands
- ◆ Compliance calendar accessible with a single touch

Listings and Certifications



1180



Additional Features

- ◆ Non-volatile memory for event storage up to 10 years
- ◆ Optional external USB thermal printer
- ◆ Optional Tank Overfill Alarm
- ◆ Available output modules include an OM4, which allows up to 16 relay-activated output devices to be connected to the ATG controller, and a LIM for STP control (maximum of four (4) STPs per LIM and four (4) LIMs per system)
- ◆ Optional density measurement sensor has the capability to monitor product quality
- ◆ Downloadable and Flash upgradeable software for easy updates

Leak Test Certification

- EPA Static Leak and Continuous Test Certified (ATGS & CITLDS Methods):
- ◆ 0.2 gph (0.76 L/hr) Statistical Leak Test 397,000 gallons (1,502,809 liters)/month throughput for single-tank, 2-tank or 3-tank manifold installations; 30,000-gallon (113,562 liters) combined maximum capacity
 - ◆ 0.2 gph (0.76 L/hr) Static Leak Test
 - ◆ 0.1 gph (0.38 L/hr) Static Leak Test
 - ◆ 3.0 gph (11.4 L/hr) Catastrophic Line Leak Test
 - ◆ 0.2 gph (0.76 L/hr) Precision Line Leak Test
 - ◆ 0.1 gph (0.38 L/hr) Static Leak Test

Specifications

Dimensions: 14.5 inch W x 12 inch H x 4 inch D (37 cm x 30 cm x 10 cm)

Operating Temperature: 32° F to 122° F (0° C to 50° C)

Humidity: Non-Condensing (Max 95%)

Typical Mounting Location: Indoor, Non-Hazardous Area

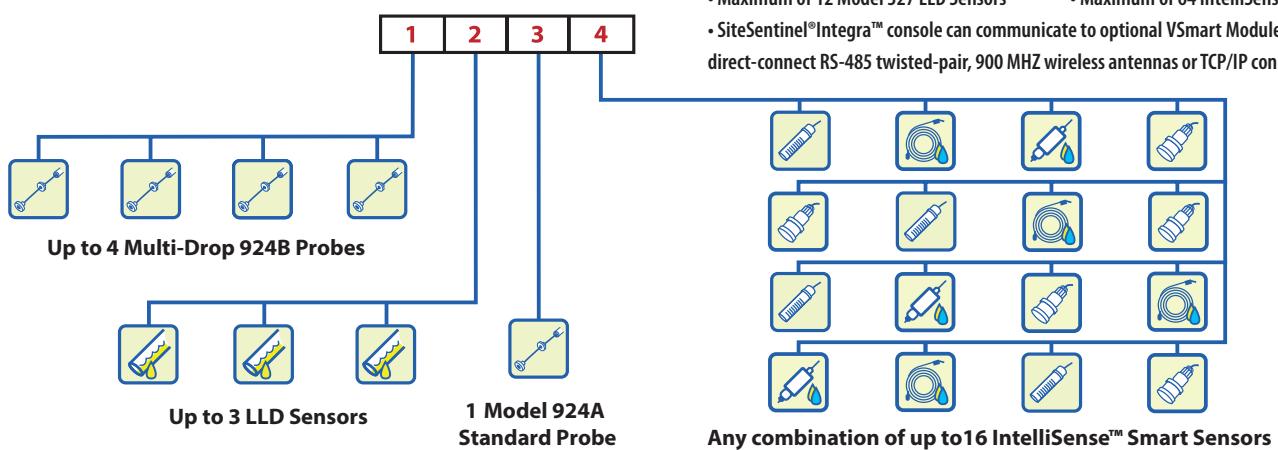
Power Requirements: 96-264 VAC, 50/60 Hz

Communication Ports: One (1) x Ethernet, One (1) x RS-485, Two (2) x RS-232, Two (2) x USB, Two (2) internal USB, One (1) x modem (optional)

Standard Relay: one (1) output and one (1) input internal relay connection

Up to 16 Relays Max: (4) output relays per module using optional OM4

SiteSentinel® Integra 500™ Internal I.S. Barrier



NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

SiteSentinel® iTouch™ Console

OPW's SiteSentinel® iTouch™ is a multi-function, high-quality tank-monitoring system that provides real-time, accurate inventory information for up to 16 underground storage tanks. The enhanced performance of the SiteSentinel® iTouch™ improves data processing, allows for future system expansion and can be customized to meet each user's needs.

Applications

- ◆ Provides real-time, accurate inventory information
- ◆ Displays gross or net-corrected tank volume, product level, water level and temperature
- ◆ Available output module provides multi-purpose relays, which can be used for outputs such as overfill or sensor alarm
- ◆ Third-party certified automatic or on-demand leak detection meets and/or exceeds U.S. Environmental Protection Agency regulatory requirements

SiteSentinel® iTouch™ Console Features

Part of the
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Sentinel®**
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Compliance

The certified leak detection meets or exceeds U.S. EPA regulatory requirements, protecting the environment in and around storage tanks.



Easy to Use

The graphic display gives one-touch access to real-time inventory data, delivery status, alarm conditions and leak-detection information.



Automated

Programmable Automatic Leak Detection (ALD) can be set to perform routine required leak tests. The system can automatically email alarms and events.



Connectivity

Monitors up to 16 probes or sensors that can be connected in any combination. Reports can be printed on the external printer or from SiteConnect™ on the PC printer.

- ◆ Graphic touchscreen display uses international user-friendly icons
- ◆ Monitors up to 16 probes and/or sensors that can be connected in any combination
- ◆ Touchscreen provides one-touch access to real-time inventory data, delivery status, alarm conditions, and leak detection information
- ◆ SiteConnect™ software, a Windows®-based configuration utility, makes site configuration easy
- ◆ Compatible with SmartTalk® software for enhanced business management and compliance reporting
- ◆ Automatic Leak Detection (ALD) can be programmed to perform daily, weekly, monthly, and annually required leak tests. Once programmed, the SiteSentinel® iTouch™ system will automatically look for the appropriate quiet time over the course of the day to conduct a static leak test without operator intervention
- ◆ System provides over 400 programmable correction factors guaranteeing the most accurate tank chart

Listings and Certifications



Intertek

Additional Features

- ◆ Meets Weights and Measures standards in countries where required
- ◆ Supports international time, date and decimal formats
- ◆ Software is downloadable (Flash RAM) for easy updates
- ◆ System interfaces with most POS devices, supporting standard industry protocols
- ◆ PV4 POS protocol can be modified to meet the needs and requirements of the user
- ◆ Provides three dedicated RS-232 serial communication ports
- ◆ System provides one output and one input to connect external devices like overfill alarms and line leak detectors
- ◆ Internal power supply automatically switches between 120 and 240-volt power systems
- ◆ Output Module (up to 2 modules max.) adds 4 output relays per module to control external devices
- ◆ Density measurement ensures that you receive the expected fuel quality with each delivery
- ◆ System can automatically e-mail alarms and events via TCP/IP
- ◆ Fax-out capability with external modem
- ◆ TCP/IP interface allows easy communications using your local network
- ◆ Increased memory size allows for future system expansion

System Alarms

- ◆ Low-Low Product (shutdown)
- ◆ Low Product (reorder)
- ◆ High Product (alarm)
- ◆ High-High Product (overfill)
- ◆ High Water (warning)
- ◆ High-High Water (alarm)
- ◆ Sensor
- ◆ Leak Detection

Reports

- ◆ System uses international icons to create Inventory, Delivery, System Alarm, and Leak Test reports
- ◆ Reports in Metric or English units of measurement
- ◆ Reports can be printed on the external printer or from SiteConnect™ on the PC printer

Probes and Sensors

- ◆ All probes and sensors are third-party certified to meet and/or exceed U.S. Environmental Protection Agency regulatory requirements

Management Reports

- ◆ Inventory, Delivery, Alarm and Leak Reports are available at a touch
- ◆ Reports can be configured to meet localized settings (Date/Time formats and Metric/English units)

Specifications

Operating Temperature Range:
14°F to 122°F (-10°C to 50°C)

Printer Operating Temperature Range: 32°F to 104°F (0°C to 40°C)

Cabinet Dimensions [H x W x D]:
9.3 x 12.3 x 5.2 inches (23.5 x 31 x 13 cm)

Power Requirements

Input Power: 100-250 VAC, 50/60 Hz, 0.5 A

Input Contact: 12VDC, 40 mA max.

Output Contact: 30V AC/DC, 2A

Output Module Contact: 2A @ 120/240 AC, 2A @ 24 VDC

PC Software: SiteConnect™ on CD-ROM is included

Minimum PC Requirements:

Pentium® processor, 32 MB RAM, 20 MB available hard disk space, recommended PC screen resolution (800 x 600), Windows 98®, Windows NT® (version SP4 and above), Windows 2000®, Windows XP®, Windows Vista®

Printer: System-powered, graphics 40-column thermal printer includes wall-mounted bracket and a 6 ft (1.8 m) cable

SiteConnect™ Software

- ◆ Easy to set-up and configure your entire site from your PC
- ◆ Configure your system to monitor the quality of your fuel deliveries (density measurement sensor is required)
- ◆ Refresh feature allows you to stay current with product inventory levels at a glance.
- ◆ View and print inventory, delivery, alarm, leak test, set-up and system diagnostic reports directly from your PC
- ◆ Address book keeps emergency e-mail and fax numbers organized
- ◆ POS protocols selectable through pull down menus
- ◆ Pull-down menu allows you to easily select different languages
- ◆ Provides the ability to manage fuel inventory locally or remotely from a centralized office
- ◆ Multiple password levels provide security for data access

The VSmart Module

The SiteSentinel® VSmart uses OPW's multi-drop technology to deliver extensive tank-monitoring capabilities to the largest fuel sites while reducing wiring and installation costs.

The VSmart communicates to compatible tank gauges through a unique wired, wireless or network connection. All digital devices can be multi-dropped directly to a VSmart I.S. Barrier. This capability lowers installation costs by allowing installers to use fewer wires between the VSmart, probes and sensors. The module supports up to 32 924B probes or 8 flex probes per module, and 12 Model 327 VLDD Sensors, 16 probes and 64 IntelliSense Sensors per I.S. Barrier.

Using patented proprietary IntelliSense™ technology for probes and sensors, the VSmart automatically detects the type of device connected to it and sends the information directly from the module to the console for easier programming. With a NEMA 4-rated enclosure, the VSmart Module can be located near the tank area (Note: not in Zone 0, 1 or 2), which will further reduce – or eliminate – direct wiring runs back to the console.

The VSmart Module Features

Part of the
**Site
Sentinel®**
family of products



Multi-drop



Wireless



Easy Installation



Savings

- ◆ Optional single wireless radio antenna installed aboveground for higher-power signal and assurance of best possible connection
- ◆ Interfaces probes, sensors and LLDs to compatible tank gauges console by multidropping through a single I.S. channel
- ◆ Lowers installation costs by eliminating multiple wiring (home runs) for probes, sensors or LLDs back to the console in the building
- ◆ Automatically detects probe, sensor, density float and LLD on any I.S. channel
- ◆ NEMA 4-rated VSmart enclosure
- ◆ Optional wireless modem
- ◆ Maximum of 8 VSmart Modules per SiteSentinel® iSite™ or 7 per Integra 500™ console
- ◆ Maximum of sixteen (16) 924B probes per I.S. Barrier
- ◆ Maximum of 4 AST Flex Probes per I.S. Barrier
- ◆ Maximum Number of Probes: Up to 32 Model 924B probes and/or 8 flex probes per VSmart Module
- ◆ Probe Length: 924B rigid stainless steel; horizontal tanks up to 12 feet (3.7 m); vertical tanks up to 20 feet (6.1 m) or flexible PVDF for AST applications up to 70 feet (21.3 m)
- ◆ Maximum of 64 sensors per I.S. Barrier
- ◆ Maximum of 12 Model 327 VLDD Sensors per I.S. Barrier
- ◆ Maximum of 128 sensors per VSmart Module

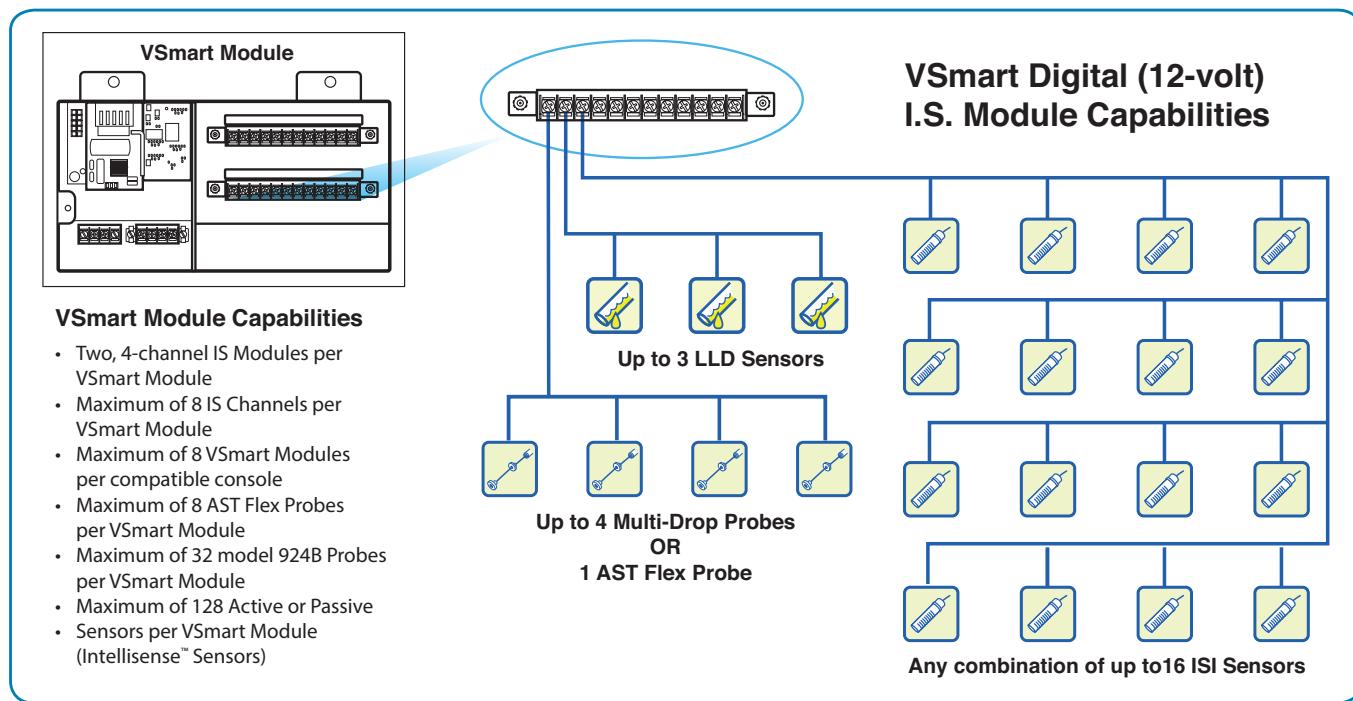
Listings and Certifications



Specifications

- ◆ Probe/sensor location: Class 1, Division 1, Group D; EEx ia IIA T4
- ◆ Typical mounting location outdoor – non-hazardous zone
- ◆ Operating Temperature: -40°F to 158°F (-40°C to 70°C)
- ◆ Data Cable: Belden 88760 (18 AWG) maximum of 1,000 feet (305 m) per barrier position; Belden 88761 (22 AWG) maximum of 500 feet (152 m) per barrier position
- ◆ Dimensions [W x H x D]: 11.3 x 5.6 x 5.8 inches (29 x 14 x 15 cm)
- ◆ Maximum twisted-pair wiring using RS-485: 5,000 feet (1,524 m)
- ◆ Maximum wiring for Ethernet (CAT5/CAT6): 300 feet (91.4 m)
- ◆ Wireless capabilities extend up to 1,500 feet (457 m) maximum with free line-of-site

VSmart Digital (12-volt) I.S. Module Capabilities



Note: The VSmart can handle two (2) four-channel I.S. barriers.

Intrinsically Safe Module Certifications



Model 924B Magnetostriuctive Probe

All stainless-steel construction, highly accurate, easy installation and trouble-free performance for reliable inventory management and in-tank leak detection.

The 924B Magnetostriuctive Probe features standard stainless-steel construction, making it the ideal inventory measurement solution for gasoline, diesel, ethanol and biodiesel applications. Available in lengths from 53 inches (135 cm) to 149 inches (379 cm), OPW 924B probes are designed to provide accurate fuel level readings no matter the size of your tanks.

Model 924B Magnetostriuctive Probe Features

Part of the
**Site
Sentinel®**
family of products



Easy Integration



Compliance

- ◆ Welded construction eliminates potential leak points
- ◆ Level 1 probe – One (1) probe for all applications
- ◆ Easy Installation – Fits in a 2-inch to 4-inch (5.1 cm to 10.2 cm) riser



Accurate



Easy To Use

- ◆ Up to four probes can be connected on a single I.S. module on compatible tank gauges
- ◆ Optional Density Floats provide a measure of all changes in product density within a specified API density range

Magnetostriuctive Probe Data

- ◆ Capable of measuring product level changes to a resolution of 0.0005 inches (0.0127 mm)
- ◆ Measures product temperature changes to a resolution of 0.2°F (0.1°C)

- ◆ Measures water level changes to a resolution of 0.012 inches (0.254 mm)
- ◆ Linearity over the entire probe length is ± 0.04 inches (± 1 mm)

Certifications & Accreditation



Leak Test Performance

- ◆ EPA Static Leak and Continuous Test Certified
- ◆ 0.2 gph (0.76 L/hr) Statistical Leak Detection (SLD) Test
Note: Only available on SiteSentinel® iSite™ and Integra™ tank gauges, 397,000 gallons (1,502,809 liters)/month throughput for single-tank, 2-tank or 3-tank manifold installations; 30,000-gallon (113,562-liter) combined maximum capacity
- ◆ 0.2 gph (0.76 L/hr) Statistical Leak Detection (SLD) Test: 99.1% Pd, 0.9% Pfa
- ◆ Third-party certified to meet U.S. EPA Static Leak Detection requirements in tanks up to 20,000 gallons (76,000 liters)
- ◆ 0.2 gph (0.76 L/hr) Static Leak Test: 98.18% Pd, 1.82% Pfa
- ◆ 0.1 gph (0.38 L/hr) Static Leak Test: 96.5% Pd, 3.5% Pfa
- ◆ 0.2 gph (0.76 L/hr) Automatic Leak Detection (ALD)
- ◆ 0.1 gph (0.38 L/hr) Automatic Leak Detection (ALD)

Specifications

Type: Magnetostrictive/Float

Material: Stainless-Steel Body, Nickel-Coated Brass Cap

Location: Hazardous, Class 1, Division 1, Group D

Temperature: 5 RTDs

Temperature Range: -40° F to 158° F (-40° C to +70° C) At Pi: 1W

Data Cable: 1,000 feet (305 m) Belden 88760; 500 feet (152 m) maximum of Belden 88761

Probe Length

Part #	Description	Part #	Description
30-B053	53 inch (135 cm)	30-B105	105 inch (267 cm)
30-B069	69 inch (175 cm)	30-B113	113 inch (287 cm)
30-B077	77 inch (196 cm)	30-B125	125 inch (318 cm)
30-B089	89 inch (226 cm)	30-B137	137 inch (348 cm)
30-B101	101 inch (257 cm)	30-B149	149 inch (379 cm)

Probe Float Kits

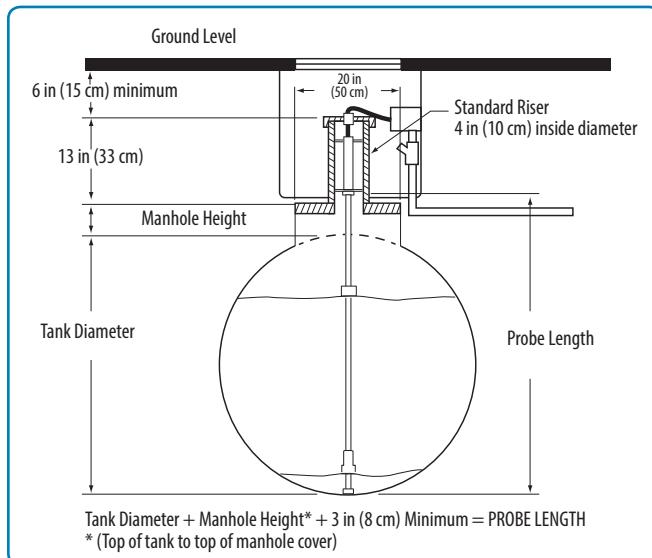
Part #	Description
30-1509-02	2 inch (5.1 cm) Gas/Water Nitrophyl Float Kit
30-1509-01	2 inch (5.1 cm) Diesel/Water Nitrophyl Float Kit
30-3232	2 inch (5.1 cm) Density Measurement Kit

Stainless-steel floats available upon request.

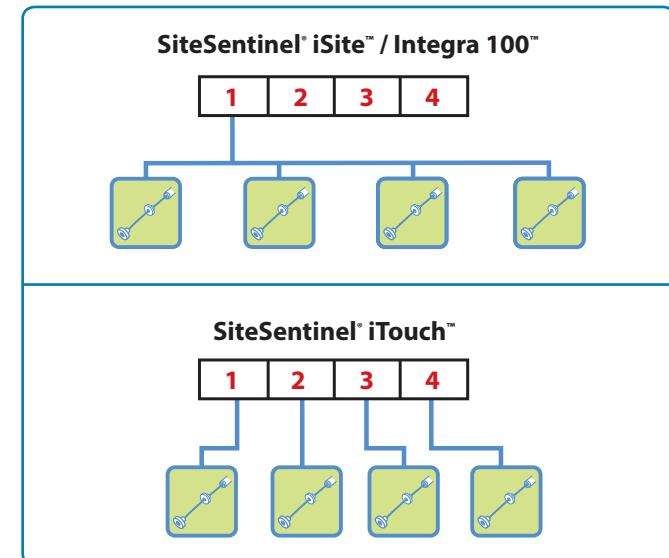
NOTE: No leak testing available with stainless-steel floats.

OPW LPG Floats and Density Measurement Sensors are not certified for applications in which they will be subjected to pressures at or above 300 PSI. Pressures higher than 300 PSI will damage the devices, preventing them from providing accurate measurements

Tank Configuration Diagram



I.S. Barrier Wiring Diagram



Model 924B Inventory-Only Magnetostrictive Probe (12 to 20 feet in length / 3.7 to 6 meters)

The 924B Inventory-Only Probe offers field-proven accuracy with industry-leading magnetostrictive probe technology.

The Model 924B Inventory-Only Magnetostrictive Probe features standard stainless-steel construction, making it ideally suited for use with gasoline, diesel, ethanol and biodiesel.

Model 924B Inventory-Only Probe Features

Part of the
**Site
Sentinel®**
family of products



Accurate



Easy To Use

- ◆ Welded construction eliminates potential leak points
- ◆ Level 1 probe – One (1) probe for all applications
- ◆ Adjustable probe-head centering disks provide a tight fit inside risers with diameters ranging from 2-inches to 4-inches (5.1 cm to 10.2 cm)
- ◆ With or without a water float
- ◆ Can be multi-dropped – Up to four (4) probes connected on a single I.S. channel on compatible gauges



Easy Integration

- ◆ Optional Density Float provides a measure of all changes in product density within the specified API density range
- ◆ Five-point temperature sensing element provides temperature compensation for product volume contraction and expansion, allowing for accurate inventory management.

Note: OPW recommends using a manlift to install the probe. Care should be taken to support the probe shaft until the probe is completely vertical. This installation will require two installers. Not certified for Leak Detection.

Magnetostrictive Probe Data

- ◆ Measures product level changes to a resolution of 0.0005 inches (0.0127 mm)
- ◆ Measures product temperature changes to a resolution of 0.001° F (0.0006° C)

- ◆ Measures water level changes to a resolution of 0.012 inches (0.254 mm)
- ◆ Linearity over the entire probe length is ± 0.04 inches (± 1 mm)

Certifications & Accreditation



Probe Length

Probe available from 12- to 20-foot lengths (3.7 to 6 meters)
(Available in 6-inch (15.2 cm) increments only)

Probe Float Kits

Part #	Description
30-1509-02	2 inch (5.1 cm) Gas/Water Nitrophyl Float Kit
30-1509-01	2 inch (5.1 cm) Diesel/Water Nitrophyl Float Kit
30-3232	2 inch (5.1 cm) Density Measurement Kit

Stainless-steel floats available upon request.

Note: No leak testing available with stainless-steel floats.

OPW LPG Floats and Density Measurement Sensors are not certified for applications in which they will be subjected to pressures at or above 300 PSI. Pressures higher than 300 PSI will damage the devices, preventing them from providing accurate measurements

Specifications

Type: Magnetostrictive/Float

Material: Stainless-Steel Body, Nickel-Coated Brass Cap

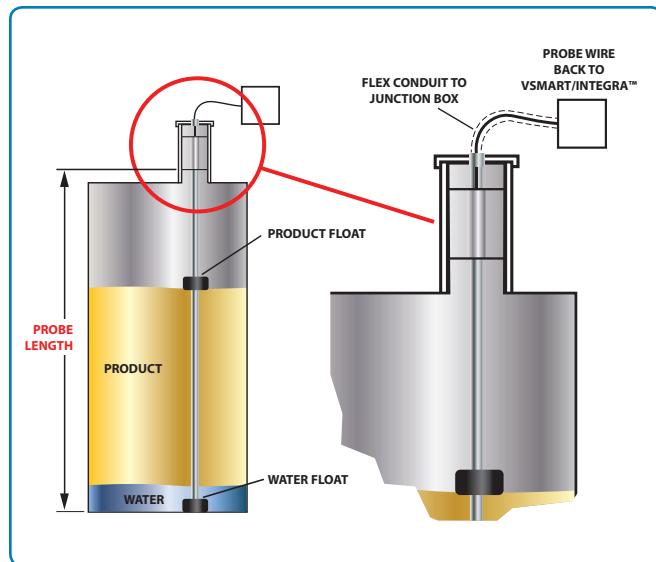
Location: Hazardous, Class 1, Division 1, Group D

Temperature: 5 RTDs

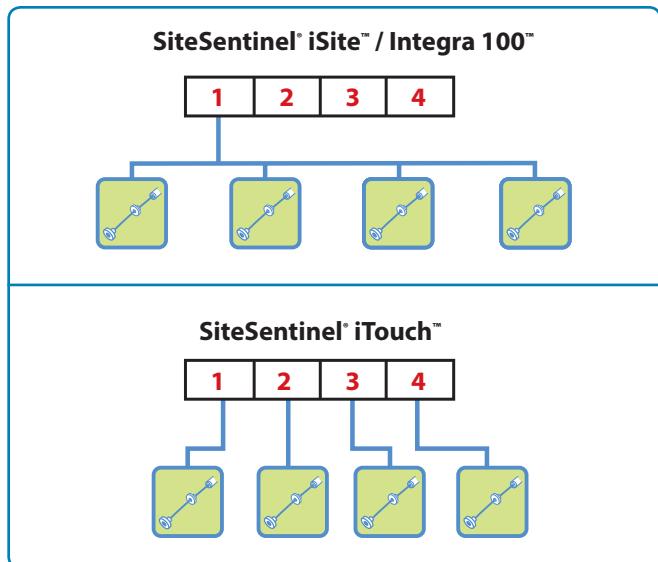
Temperature Range: -40° F to 158° F
(-40° C to +70° C) At Pi: 1W

Data Cable: 1,000 feet (305 m) Belden 88760
500 feet (152 m) maximum of Belden 88761

Tank Configuration Diagram



I.S. Barrier Wiring Diagram



Model 7100V AST Flex Probe

(Available in lengths from
12 to 70 feet / 3.7 to 21 meters)

Monitoring of products in above ground storage tanks (ASTs) can be dangerous at times and inaccurate at best. OPW's 7100V Series flexible probe utilizes magnetostrictive technology to deliver industry-leading liquid-level monitoring of AST product and water levels for all common fuel types.

The 7100V Series flexible probe allows greater precision and reliability in measuring AST product levels. This probe is ideal for liquid-level monitoring of product and water levels in a wide variety of liquids in AST's, including gasoline, diesel, ethanol, biodiesel and lubricants.

The 7100V Series can be outfitted with a low-level, inventory-only float kit, giving the operator inventory visibility to the bottom of the tank, as well as water levels in a wide variety of liquids in above ground storage tanks, including gasoline, diesel, ethanol, biodiesel, lubricants and some chemicals.

Model 7100V AST Flex Probe Features

Part of the
Site Sentinel®
family of products



Easy Integration

Probe electronics are integrated into the sensing tube, which eliminates the bulky enclosure at the top of the probe and offers installation flexibility



Easy Installation

The PVDF probe is coiled with a threaded fitting on the end of the probe, creating an AST measurement solution that is nearly "plug and play"



Accurate

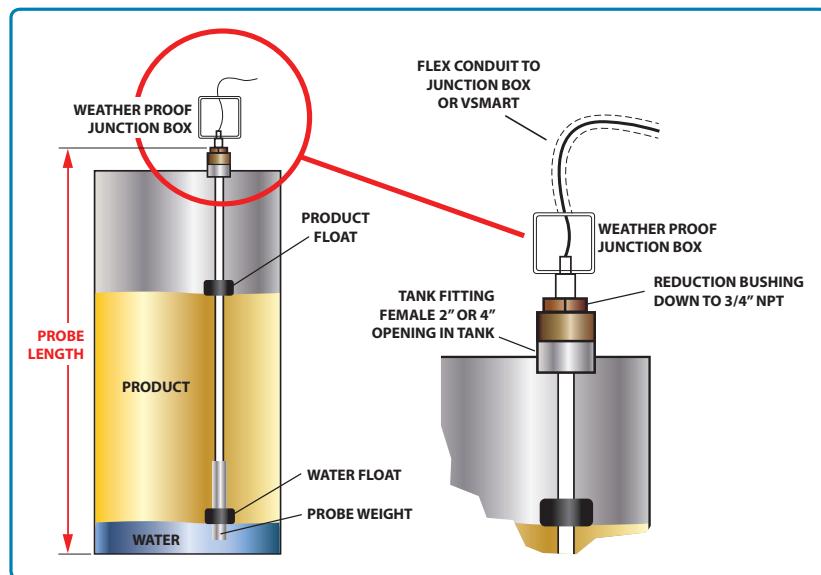
Precision technology enables the measurement of product level changes to a resolution of 0.01 inch (0.254 mm).

Note: The recommended fittings are not included in the AST Flex Probe, but can easily be purchased through a local supplier.

Listings and Certifications



Flex Probe Installation Using Pipe Fittings



(If optional water float is needed, a minimum 4-inch (10 cm) opening is required in the tank.)

Flex Probe Catalog Number

Example: 7100V-F1T5-193

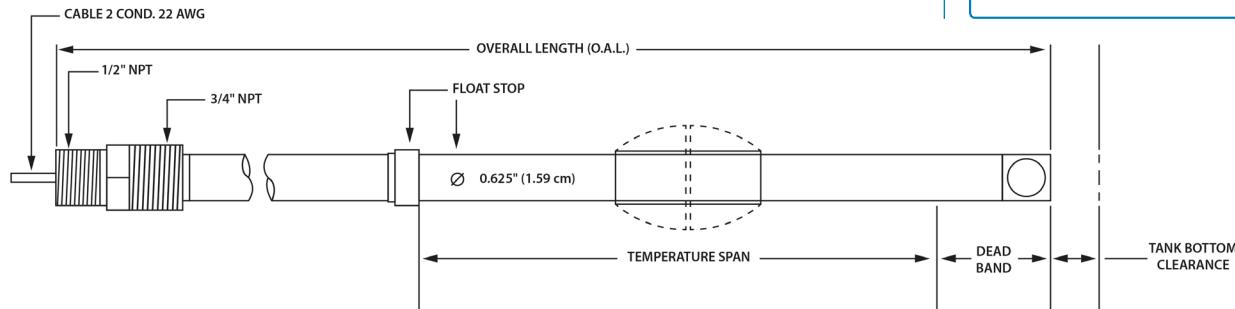
Probe Float Kits

Model #	# of Floats	# of Thermistors	Overall Length
7100V	F1	T1	193
	F2	T5	—

Flex Probe Lengths

Overall Length	Dead Band	Tank Bottom Clearance
51" – 144" (130 - 366 cm)	6.00" (15.2 cm)	1.00" (2.5 cm)
145" – 288" (368 - 732 cm)	8.00" (20.3 cm)	2.00" (5.1 cm)
289" – 432" (734 - 1097 cm)	12.00" (30.5 cm)	3.00" (7.6 cm)
433" – 600" (1100 - 1524 cm)	14.00" (35.6 cm)	4.00" (10.2 cm)
601" – 720" (1527 - 1778 cm)	17.00" (43.2 cm)	5.00" (12.7 cm)
721" – 840" (1831 - 21,134 cm)	19.00" (48.3 cm)	6.00" (15.2 cm)

7100V-Style Drawing



Specifications

Input Voltage: 23–28 VDC

Enclosure Material: PVDF

Resolution: 0.01-inch Inventory Mode

Linearity: +/- 0.01% of Full Scale, +/- 0.01 inch (0.254 mm), whichever is greater

Repeatability: +/- 0.001% of Full Scale, +/- 0.00025 inch (0.0064 mm), whichever is greater

Temperature Accuracy: Absolute +/- 2°F (+/- 1.11°C)

Temperature Measurement

Resolution: +/- 0.01°F (0.02°C)

Temperature Sensing Range: -40°F to 150°F (-40°C to 66°C)

Operating Temperature Range: -40°F to 158°F (-40°C to 70°C)

Water Float Lift-Off: 2.5 inches (6.35 cm) at 70°F (21°C)

Distance to VSmart Module: 1,000 feet (305 m) Belden 88760; 500 feet (152 m) maximum Belden 88761

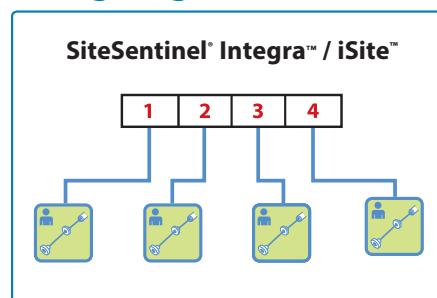
Environment: NEMA 4

Listings: UL, Intrinsically Safe, ATEX and IECEx approval

Maximum Tank Capacity:

99,999,999 gallons (approximately 378,541,175 liters)

VSmart 24-Volt Barrier Wiring Diagram



SiteSentinel® Integra™ / iSite™

1 2 3 4



IntelliSense™ Technology

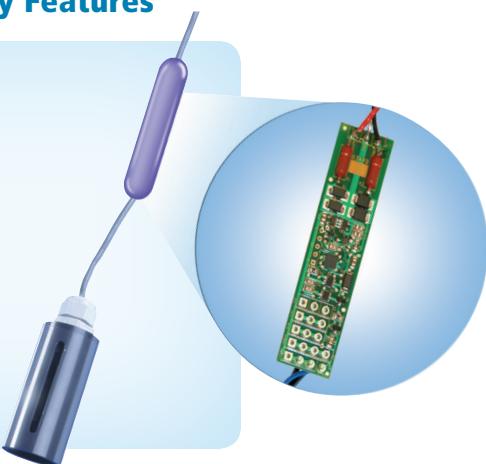
Delivers the ability to monitor all areas of the fuel site — tank interstice, piping sumps, STP containment sumps, dispenser sumps/pans and monitoring wells. IntelliSense™ technology allows for interfacing all sensors through a single 3-core cable connection. This proprietary technology is designed so that compatible SiteSentinel® tank gauges, regardless of the type or place of installation, will know immediately what type of sensor is connected and the model number and name.

Lower Installation Costs

The SiteSentinel® IntelliSense™ technology enables sensors to be "multi-dropped" together during installation, eliminating a wiring "home-run" for each sensor back to the console in the building.

IntelliSense™ Technology Features

Part of the
**Site
Sentinel®**
family of products



Innovative

IntelliSense™ makes innovative sensor technology even smarter by communicating the connection status and sensor type to compatible SiteSentinel® tank gauges.



Savings

The IntelliSense™ technology allows sensors to be multi-dropped during an installation, eliminating a wiring home-run for each sensor.



Maintenance

IntelliSense™ technology and compatible SiteSentinel® tank gauges keep track of replaced sensors by recording the sensor's serial number and date and time of its replacement.



Compliance

OPW provides a full line of discriminating and nondiscriminating sensors to monitor the environment of a fueling facility.

Available Sensors

Discriminating Dispenser Pan Sensor – provides the ability to detect a low and high liquid level and distinguish whether the fluid is water or hydrocarbons.

Detection of fuel or water will result in an alarm condition at the console. Detection of a fuel or high-water condition is useful to disable dispenser power to ensure protection of the environment. This feature assures that an alarm condition is sounded if the cable to the sensor breaks or if the sensor malfunctions.

Part Number: 30-0232-DH-10

Application: Dispenser pans

Detects: Fuel, water – high and low level

Differentiates: Fuel vs. water

Product Detection: 1.25 in (3.17 cm) fuel only - 1.25 in (3.17 cm) fuel on water

Operating Temp: -40°F to 150°F (-40°C to 65°C)

Discriminating STP Sensor – provides the ability to detect a low- and high-liquid level and distinguish whether the fluid is water or hydrocarbons. Detection of fuel or water will result in an alarm condition at the console. Detection of a fuel or high-water condition is useful to disable STP power to ensure protection of the environment. This feature assures that an alarm is sounded if the cable to the sensor breaks or if the sensor malfunctions.

Listings and Certifications



1180



LISTED

Sensors (continued)

Part Number: 30-0232-DH-20

Application: STP Sumps

Detects: Fuel, water – high and low level

Differentiates: Fuel vs. water

Product Detection: 1.25 in (3.17 cm)

fuel only - 1.25 in (3.17 cm) fuel on water

Operating Temp: -40°F to 150°F

(-40°C to 65°C)

Discriminating Interstitial Sensor – utilizes a solid-state optical technology to detect the presence of fluid in the annular space of a tank and distinguish whether the fluid is water or hydrocarbons. Detection of fuel or water will result in an alarm condition at the console. This feature assures that an alarm is sounded if the cable to the sensor breaks or if the sensor malfunctions.

Part Number: 30-0236-LW

Application: Tank Interstice

Detects: Fuel, water

Differentiates: Fuel vs. water

Product Detection: Fuel or water 0.63 in (1.59 cm)

Operating Temp: -40°F to 176°F
(-40°C to 80°C)

Sump Sensor, Float Switch – designed to detect the presence of fluid in a containment sump/pan. Additionally, this feature assures that an alarm is sounded if the cable to the sensor breaks or if the sensor malfunctions.

Part Number: 30-0231-L

Application: Dispenser pans/transitions

Detects: Fuel, water

Product Detection: Min. height 1.50 in (3.81 cm)

Operating Temp: -40°F to 150°F
(-40°C to 65°C)

Hydrocarbon Vapor Sensor – designed for the early detection of the presence of hydrocarbon vapors in dry monitoring wells and interstitial spaces of a double-wall tank.

The sensor is recoverable from detection and will return to its normal state after the vapors have dissipated. This feature assures that an alarm is sounded if the cable to the sensor breaks or if the sensor malfunctions.

Part Number: 30-0235-V

Application: Dry monitoring wells,
double wall tank interstice

Differentiates: Fuel

Product Detection: Hydrocarbon vapor

Operating Temperature: -40°F to 150°F
(-40°C to 65°C)

Interstitial Hydrocarbon Liquid with

Water Indicator – designed for use in a double-wall fiberglass tank to detect the presence of fluid and distinguish between fuel and water. This feature assures that an alarm is sounded if the cable to the sensor breaks or if the sensor malfunctions.

Part Number: 30-0234-HW-01

Application: Interstitial space of
double-wall fiberglass tank

Differentiates: Fuel vs. water

Product Detection: Requires min. 0.10 in (0.25 cm) fuel to activate

Operating Temp: -40°F to 150°F
(-40°C to 66°C)

Liquid Only Interstitial Sensor –

designed to detect the presence of fluid in interstitial space of a double-wall tank (not applicable for double-wall fiberglass tanks). The sensor, utilizing a float technology, activates at the presence of water or fuel and provides an alarm condition. It's constructed of a chemically resistive non-metallic material, and can be used in sumps, dispenser pans and other containment locations. This feature assures that an alarm is sounded if the cable to the sensor breaks or if the sensor malfunctions.

Part Number: 30-0230-S

Application: Interstitial space of
double-wall tank

Detects: Fuel, water

Product Detection: 0.20 in (0.50 cm)
fuel only - 0.10 in (0.25 cm) fuel on water

Operating Temp: -40°F to 150°F
(-40°C to 65°C)

Discriminating Fuel/Water Monitoring

Well Sensor – provides the ability to detect the presence of hydrocarbons floating on the surface of water in a groundwater monitoring well. It's also able to detect when the water in the monitoring well has dropped below the sensor, making the detection of hydrocarbons no longer possible. The system will activate an alarm condition indicating that the monitoring well is dry and environmental protection has been compromised. This sensor is used for monitoring wells that are 6 to 20 feet (1.83 to 6.09 meters) deep.

Part Numbers: 30-0234-HW-06

[6.0 ft (1.83 m)], 30-024-MW-15 [15.0 ft (4.57 m)], 30-0234-HW-20 [20.0 ft (6.09 m)]

Application: Wet monitoring wells

Detects: Fuel on water surface

Differentiates: Fuel on water or when
water drops below sensor

Product Detection: As little as a 0.10 in (0.25 cm) fuel on water

Operating Temp:

32°F to 122°F (0°C to 50°C)

Dual-Float Brine Sensors –

The dual float brine sensor measures the level of brine solution in a dispenser sump or fiberglass tank. The bottom float of the brine sensor will remain floating under normal conditions. If the bottom float drops, it will trigger a low liquid alarm; if the brine sensor's top float begins floating, it will trigger a high liquid alarm.

Part Numbers: 30-0232-D-10B (dispenser sump) and 30-0232-D-20B (fiberglass tank)

Application: Measures brine solution in
dispenser sumps and fiberglass tanks

Detects: Low liquid, high liquid

Operating Temp: -40°F to 158°F (-40°C
to +70°C)

Aqueous Ethanol Float Sensor

OPW's Aqueous Ethanol Float Sensor provides industry-leading in-tank detection of water contamination and phase separation.

Phase-separated fuel occurs when water in the tank causes the ethanol to become saturated to the point that it can no longer be suspended, and falls out of the gasoline and settles at the bottom of the tank. Fuel contamination resulting from phase separation can cause significant damage to vehicle engines.

OPW's AEF Sensor detects water level changes and product density changes at the bottom of storage tanks sooner than competing water-detection devices, and unlike competing aqueous ethanol detection devices, OPW's AEF Sensor's real-time density readings are temperature-corrected, which prevents false phase separation alarms.

OPW's AEF Sensor is compatible with rigid probe applications and monitors ethanol blends ranging from E10 to E85. Programmable thresholds allow corrective actions to be deployed before phase separation — and costly inventory losses — occur.

Aqueous Ethanol Float Sensor Features

Part of the
Site Sentinel®
family of products



Precise

AEF Sensor detects water level changes and product density changes almost four times earlier than competing detection devices and eliminates false phase separation alarms



Savings

Preventing fuel contamination helps petroleum marketers minimize financial losses and maintain customer loyalty



Proactive

Programmable density thresholds enable corrective actions to be deployed in a time frame that provides maximum operational uptime



Compatible

The AEF Sensor, which monitors ethanol blends from E10 to E85, seamlessly integrates with OPW tank gauging equipment

- ◆ Provides early detection of water intrusion by sensing water level changes (at 5/16 inch) and product density fluctuations at bottom of the tank
- ◆ Provides real-time fuel density measurements
- ◆ Program tank gauge alarms to activate at specific density thresholds
- ◆ Unlike competing aqueous ethanol floats, OPW's AEF sensor net-corrects for thermal changes in the tank that frequently occur during deliveries, eliminating false phase separation alarms
- ◆ Triggers a warning and then an alarm to accurately and clearly communicate current tank conditions
- ◆ Registers density changes in E85 even if water is completely suspended in the fuel and no water has collected at the bottom of the tank
- ◆ Easily installs on new and existing in-tank OPW magnetostrictive probes
- ◆ Fits through the same 2-inch (5 cm) opening in the tank that's used by the probe

NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

- ◆ Displays temperature-corrected density readings in kg/m³, g/cc or API
- ◆ AEF Sensor calibrates in-tank product density to deliver the most accurate density measurement readings
- ◆ System alarms when sensor detects that the E10 density has exceeded 30 kg/m³ or that E85 density has exceeded 15kg/m³
- ◆ Compatible with rigid probe applications
- ◆ Programmable alarm settings

Specifications

Material: Nitrophyl, Buna, stainless steel, plastic/metal composite magnet

Resolution: 0.0127mm (0.0005 inch)

Accuracy: +/- 1%

Density Range: 720 kg/m³ to 1,000 kg/m³

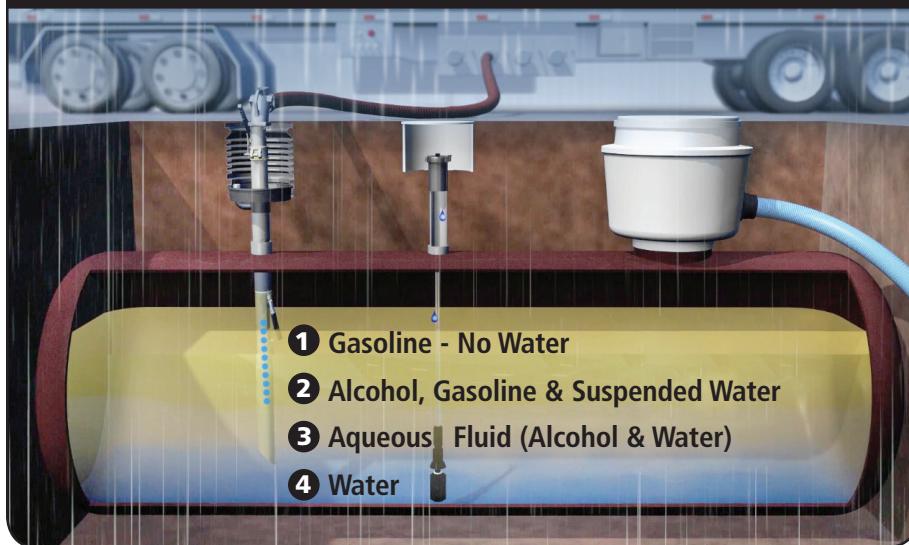
Operating Temperature: -40°C to -60°C (-40°F to 140°F)

Dimensions: 1.95 inch diameter x 8.87 inches long (4.95 cm diameter x 22.53 cm)

How Water Sabotages Fuel Inventory Through Phase Separation

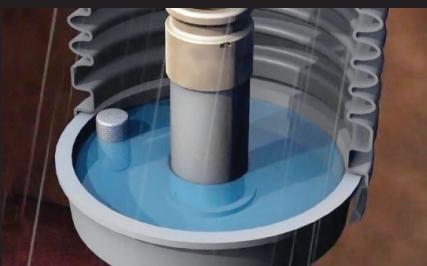
Water is the enemy of fuel. It takes very little water to ruin inventory.

In 10,000 gallons of E10, it takes as little as 40 gallons of water to cause phase separation, a condition when the ethanol becomes over-saturated and can no longer be suspended in the gasoline. This can lead to four distinct layers of inventory:



Water can enter tanks in two ways, which are common and difficult to prevent:

1 The spill container during fuel delivery



2 A bad riser cap gasket or service fitting



Density Measurement Float

Whether for a new or existing installation, the Density Measurement Float easily installs on the OPW Magnetostrictive Probe. Combining industry-leading water, product and density measurement, the SiteSentinel® family Density Measurement Float uses a single magnetostrictive in-tank probe assembly.

The sensor continuously measures the density of the fuel in the tank, providing a measure of even the smallest changes in product quality within the API density range. Fuel density reports can be displayed real-time on the SiteSentinel® family of tank gauges or exported to an external display. The density readings can be configured to either nominal or temperature-corrected density.

Density Measurement Float Features

Part of the
**Site
Sentinel®**
family of products



Precise

Continuously measures the average density of the fuel in the tank, providing precise density measurements of $\pm 0.04\%$



Easy Installation

Density and level measurement capabilities combined on one I.S. channel simplify installation requirements



Easy Integration

As with every OPW tank gauge component, the density float works seamlessly with the SiteSentinel® family of products



Cost-Effective

Easily retrofitted to new and existing in-tank SiteSentinel® 924B level probes, providing an economical solution to ensure continuous product quality.

- ◆ Provides real-time density information
- ◆ Floats available for gasoline and diesel
- ◆ Applicable in petroleum products designed for both underground (UST) and above ground (AST) rigid probe applications
- ◆ Trouble-free design
- ◆ Small float profile enables more space on probe rod to be utilized
- ◆ Displays density in kg/m³, g/cc or API
- ◆ Fuel density reports can be displayed in real-time on SiteSentinel® family of controllers or exported to an external display
- ◆ Density readings can be configured to either nominal or temperature-corrected density
- ◆ Easy to retrofit to existing in-tank level probes (SiteSentinel® 924B Probe)
- ◆ Density and level measurement combined on one (1) I.S. module position connection without the need for a dedicated input channel or additional wiring

NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

Additional Features

- ◆ Fits through the same 2.0 in (5 cm) opening in the tank that's used by the probe
- ◆ Economical solution to ensure continuous product quality
- ◆ Four (4) probes (with density float) per I.S. Channel (SiteSentinel® Integra 100™, SiteSentinel® Integra 500™, SiteSentinel® Nano® and SiteSentinel® iSite™)
- ◆ Dedicated density probes can support three (3) density floats per probe to ensure product quality – not available with level measurement
- ◆ Provides precise, real-time data about product quality by continuously measuring fuel density

Specifications

Material: Nitrophyl®, Delrin® and stainless-steel spring

Dimensions: 2 in (diameter) x 8 in [5.1 cm (diameter) x 20.3 cm]

Precision: ±0.04%

Density Range: 0.6 - 1.0 g/cc

Suggested Location: 6 inches (15.2 cm) from the bottom of the probe. NOTE: Use two (2) set screws at the top of the float to hold it in position

Number of Floats per SiteSentinel® Integra 100™, Integra 500™, SiteSentinel® Nano® or iSite™ System: One per probe or multi-float dedicated probe equipped with three (3) floats

Model 327 Volumetric Line Leak Detector (VLLD)

While pressure may have its place in many fuel-related applications, it's performance in line-leak detection has been found less than reliable. Rising to the challenge of finding a more reliable solution, OPW Fuel Management Systems offers the Model 327 Volumetric Line Leak Detector (VLLD). The VLLD has been designed to use a highly accurate flow sensor, rather than less-reliable pressure decay methods, to measure the product line's leak rate. In turn, VLLD provides a more accurate measure of the actual product volume that is being lost.

The Model 327 VLLD has been designed to detect a leak in the pressurized product pipe by utilizing the submersible turbine pump (STP) in order to monitor volume changes in the product piping when no one is dispensing fuel. The OPW VLLD utilizes an internal flow sensor to detect and measure any volume changes in the product pipe and will initiate an alarm condition if a leak is detected. Constructed from hardened anodized aluminum, the rugged Model 327 VLLD is easy to install in the 2-inch (5.1 cm) leak-detector port found on the submersible turbine pump (STP).

Model 327 Volumetric Line Leak Detector (VLLD) Features

Capable of >3 gph catastrophic line leak test, even if an STP relay fault condition occurs where the STP motor is in a continuous run state



Easy Integration



Easy To Use

- ◆ Provides a true volumetric line leak test
- ◆ Capable of >3 gph (11.4 L/h) catastrophic line leak test, even if an STP relay fault condition occurs where the STP motor is in a continuous run state
- ◆ Installs into the 2-inch (5.1 cm) leak detector port on the submersible turbine pump (STP) motor
- ◆ Capable of connecting three (3) VLLD sensors via one (1) three-conductor wire back to the building
- ◆ Capable of testing the largest pipe volume in the industry [1.5-inch (3.8 cm), 2-inch (5.1 cm), 3-inch (7.6 cm), and 4-inch (10.2 cm) pipe]
- ◆ Capable of controlling up to four (4) STP motors within a single-line manifold set



Easy Installation



Savings

- ◆ Capable of controlling two separate STP motors installed in the same tank
- ◆ Eliminates the need to know exact line lengths or diameters of underground pipe
- ◆ Works with a combination of fiberglass and flex pipe
- ◆ Configurable for STP motor control as a way to bring all tanks in a manifold set down evenly either by percent of volume in the tank or until a user-defined product level is reached before switching over to another tank in the manifold set
- ◆ Reduces installation cost - Line Leak Interface Module (LIM) is mounted separately, near STP motor relays, to eliminate the need for running pump-control wires back to the tank-gauge console

Listings and Certifications

U.S. Patent
No. 8,316,695



Additional Features

- ◆ LIM is capable of controlling up to four (4) STP motors
- ◆ Will shut off STP motor if a low-level alarm or probe failure has occurred
- ◆ Programmable to run an optional monthly 0.2 gph (0.76 L/hr) or annual 0.1 gph (0.38 L/hr) compliance test
- ◆ Reduces installation time by eliminating the need to run a line-leak calibration test to determine the leak characteristics of the pipe
- ◆ Runs precision tests at the pump's operating pressure
- ◆ Reduces hydraulic hammering on the dispenser meters

Leak Test Certification

- ◆ Leak rate of 3.0 gph (11.4 L/hr) at 10 psi with Pd = 100% and Pfa = 0%
- ◆ Leak rate of 0.2 gph (0.76 L/hr) at operating pressure with Pd = 100% and Pfa = 0%
- ◆ Leak rate of 0.1 gph (0.38 L/hr) at 1.5 times operating pressure with Pd = 97.9% and Pfa = 2.1%

Specifications

Type: Volumetric Line Leak

Material: Hardened Anodized Aluminum

Location: Hazardous, Class 1, Division 1, Group D

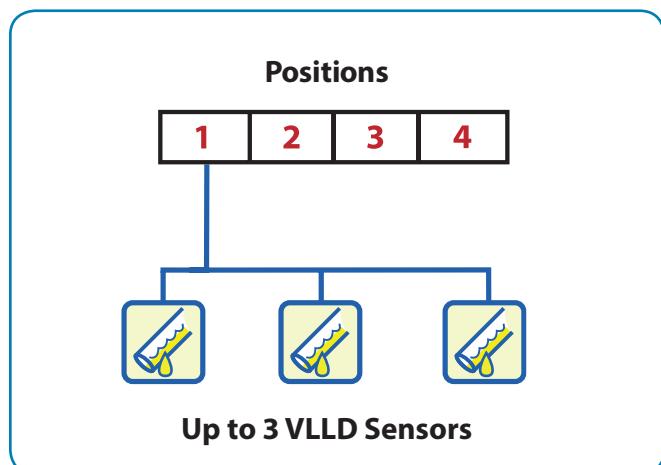
Temperature Range: -40°F to 140°F (-40°C to 60°C)

Data Cable: 1,000 ft (305 m) Belden 88760; 500 ft (152 m) maximum Belden 88761

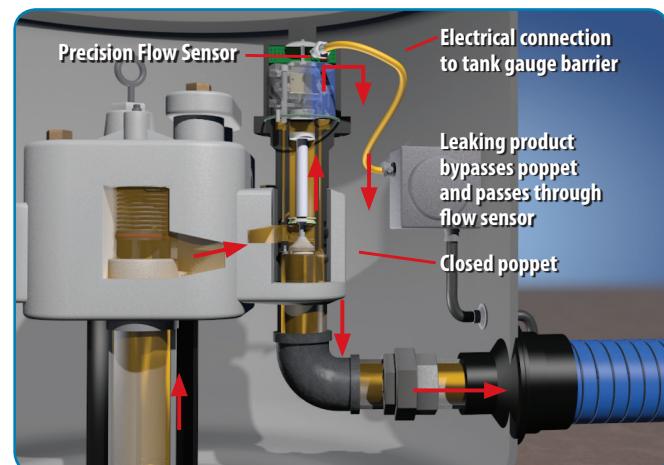
Pipe Characteristics

Pipe Diameter	Flex Pipe Length	Rigid Pipe Length
1.5 in (3.8 cm)	1,187 ft (362 m)	4,628 ft (1,411 m)
2 in (5.1 cm)	668 ft (204 m)	2,603 ft (793 m)
3 in (7.6 cm)	297 ft (91 m)	1,157 ft (353 m)

Integra™ / iSite™ VSmart I.S. Barrier



Operation of OPW VLLD Precision Flow Sensor



NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

Petro Vend Fuel Control Systems

From the smallest fleet to the largest petroleum marketing operation, Petro Vend has been providing effective solutions to meet your fuel control needs since 1961.

24-hour unattended fleet fueling systems like the Petro Vend 100®, K800™ and AFC™ only allow authorized users to

access fuel, tracking every transaction and restricting vehicles to the type of fuel and quantities they need for complete security, accountability and control.

Systems like The K800™ Hybrid, C/OPT™, DTC and FIT500™ accept nationwide fueling network cards as well as local proprietary cards, allowing

petroleum marketers to grow their 24-hour unattended fueling business and stay profitable. Other industry-leading options like wireless data communication and powerful fuel management software continue to make Petro Vend Fuel Control Systems the leader in 24-hour unattended fuel management.

Petro Vend Fuel Control Systems - Features Overview

Fuel Control System Model	Petro Vend 100® (page 270)	DTC (page 282)	FIT500™ (page 274)	C/OPT™ (page 272)	K800™ Hybrid (page 276)	K800™ (page 278)	AFC™ (page 280)
Magnetic Stripe Card Access	•	•	•	•	•	•	•
ChipKey® Access	•			•	•	•	
Proximity Card Access	•			•	•		
DuraKey™ Access							•
Keypad Access	•	•	•	•	•	•	•
Hose Capacity Per System ²	4	12	32 (16 electronic)	32 (16 electronic)	32 (16 electronic)	16	8
Fuel Island Terminal Capacity Per System	1		8	12	8	4	1
Max. Transaction Storage	Optional Unlimited	2000	2000	2000	2000	1,800	999
Maximum Proprietary (local network) Card/Key/User Capacity	1000	150,000	150,000 ⁴	64,000 ⁴	150,000 ⁴	10,000	10,000
Single-Site Mileage Reasonability		•	•	•	•	•	•
ChipKey Mileage Reasonability				•	•	•	
Dual Card Accountability	•	•	•	•	•	•	•
Phoenix™ Software Compatibility		•	•	•	•	•	
Commercial Fleet and Trucking Card Acceptance		•	•	•	•		
Bankcard Acceptance		•	•	•			
Wireless Communication			•	•	•	•	
Certifications	ETL ETLC	ETL ETLC	ETL ETLC	ETL ETLC	ETL ETLC	ETL ETLC	ETL

¹ NOTE: Only applicable when used with appropriate fuel island terminal.

² NOTE: Hose capacity is dependent upon pump type (mechanical or electronic) for FIT500™, C/OPT™ and K800 Hybrid™ systems.

³ NOTE: Supports Wayne CAT or Gilbarco CRIND.

⁴ NOTE: Dependent upon options and card restrictions selected.

OPW Fuel Control



Fuel Control

- Petro Vend Fuel Control Systems Overview 264
- FSC3000™ Fuel Site Controller 266-267
- Phoenix® 268-269
- Petro Vend 100® 270-271
- C/OPT™ 272-273
- FIT500™ 274-275
- K800™ Hybrid 276-277
- K800™ 278-279
- AFC™ 280-281
- Pulsers 281
- Dispenser Terminal Control 282-283
- OPW Communications Technologies 284-285



FSC3000™ Fuel Site Controller

The FSC3000™ Fuel Site Controller sets the standard in fuel-management systems. The FSC3000™ is the most comprehensive solution for your fleet-fueling or petroleum-marketing applications, featuring the capability to conveniently track and report fueling transactions by driver and/or vehicle.

The FSC3000™ Fuel Site Controller interfaces with many authorization and commercial fueling networks, as well as proprietary network cards. It allows the user to set fueling restrictions that limit specific vehicles to the type of fuel used and quantities purchased, thereby assuring complete fueling-system security, accountability and control.

The FSC3000™ also provides various methods for controlling fuel dispensers, which may feature both mechanical and electronic pumps, along with Gilbarco CRIND and Wayne CAT in-dispenser card readers.

In addition, the FSC3000™ now offers several exciting new features for special pricing and dollar authorization. Petroleum marketers can now set price discounts for loyal customers, as well as authorize transactions according to dollar limit instead of quantity.

FSC3000™ Fuel Site Controller Features

NEW FEATURES!



Secure



Communication



Easy To Connect



Easy Integration



Savings

- ◆ Each FSC3000™ can now control up to 12 FITs or Dispenser Terminal Controls (DTC) with a maximum of 32 hoses per site
- ◆ Optional Direct Pump communication via current loop for Gilbarco, Wayne or via RS-485 for Gasboy® dispensers
- ◆ Optional ChipKey® Read/Write Mileage Reasonability designed for multiple site operations to accurately track odometer readings
- ◆ **NEW!** Optional Dispenser Terminal Control allows communication to Gilbarco CRIND® and Wayne CAT in-dispenser card readers
- ◆ Optional Tiered Discounts designed to provide support based on Gasboy-formatted cards
- ◆ Optional Tiered Accounts for credit cards and/or proprietary cards/keys to set tier pricing on a user-entered "Account" number
- ◆ **NEW!** Optional cellular modem and Ethernet bridge communication devices allow communication to remote locations in order to facilitate updates and retrieval of transaction data
- ◆ Optional 900 MHz wireless communication reduces installation cost from installing Petro-Net™ twisted-pair wires between the Fuel Island Terminal and building
- ◆ Optional Future Media price-sign support
- ◆ Optional Office Journal Printer for transaction logging and reporting

Listings and Certifications



NATIONAL COUNCIL OF
WEIGHTS AND MEASURES

Benefits

- ◆ PCI compliance ensures cardholder data security
- ◆ Accepts the widest selection of fueling networks and major bank cards
- ◆ Memory to support larger card files (more than 64,000 cards with optional memory card expansion)
- ◆ Embedded hardware platform for ultimate 24/7 reliability
- ◆ Uses Flash technology to remotely download software updates
- ◆ Integrated FSC3000™ can be installed inside a Fuel Island Terminal for installations where no building is available
- ◆ Interfaces with OPW Tank Gauges for polling inventory and delivery data
- ◆ Built-in Ethernet port for network connectivity
- ◆ Multiple communication methods to access the system
- ◆ Standard USB memory key for transaction backup/transfer, allowing for the option to update card files

Memory

- ◆ Standard memory 2,000 proprietary cards and 500 transactions
- ◆ Expandable to 64,000 proprietary cards and 2,000 transactions
- ◆ The second memory card expands card support from 64,000 to 150,000 cards, depending on the options and card restrictions selected

Networks

- ◆ The FSC3000™ interfaces with many authorization and commercial fueling networks to accept the following cards:
 - CFN, Bank Cards, TCH, Fuelman®, GASCARD, Comdata, NBS, Paymentech, Fleet One®, WEX, T-Chek™, EFS, Pacific Pride and Buypass
- ◆ Dual Network option reduces wait times by accessing two networks simultaneously
- ◆ The registered bankcard feature permits 24-hour fueling in areas where unattended fueling is generally restricted
- ◆ Optional IP Authorization Gateway, gives the FSC3000™ the capability to use a high-speed Internet connection instead of a dial-up phone line to authorize fleet and credit-card transactions with dial-up backup

Direct Pump Control

- ◆ Support for Gasboy, Wayne and Gilbarco dispensers
- ◆ Connects directly to pump manufacturer's distribution box
- ◆ Serial to current-loop communication (Gilbarco or Wayne)
- ◆ Serial to RS-485 communication (Gasboy)

Supported Terminals

- ◆ Compatible with OPW Fuel Island Terminals, (C/OPT™, K800™ Hybrid and FIT500™)
- ◆ Compatible with Gilbarco CRINDs or Wayne CATs

FSC3000™ Specifications

Dimensions [H x W x D]: 2.25 x 10.0 x 8.25 inches (5.7 x 25.4 x 21.0 cm)

Power Requirements: 85-240 VAC, 50/60 Hz; 25 watts maximum

Operating Temperature Range (indoors): 32°F to 122°F (0°C to 50°C)

Serial Communication Ports:

Petro-Net™ (RS-485), Printer (RS-232), Terminal (RS-232), Modem (RS-232), Pass-through (RS-232), two (2) Auxiliary Ports (RS-232), Ethernet, USB

Maximum Petro-Net™ Distance: 5,000 ft (1,524 m)

Phoenix® Software

- ◆ Phoenix Plus™ – poll transactions, perform card updates, and run reports
- ◆ Phoenix Premier™ – all of the Phoenix Plus™ features, plus tank-gauge interface for reconciliation
- ◆ Phoenix SQL® – a Web-based multi-user browser interface with controlled user access. Polls transactions and tank gauges simultaneously, dramatically reducing data collection times for multiple fuel sites
- ◆ Phoenix SQL Lite™ – Offers all of the features of Phoenix SQL, but as a standalone Windows® application it is designed for single user operations

Phoenix® Software For Advanced Management

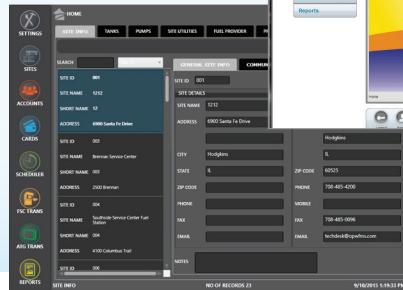
Phoenix SQL® and Phoenix SQL Lite™ are powerful fuel management software packages for your C/OPT™, FIT500™ and K800 Hybrid™ Fuel Control Systems and your Windows®-compatible PC. The software's intuitive user interface lets you easily navigate between site, account, card and transaction screens. Both Phoenix SQL and Phoenix SQL Lite interface directly with OPW's FSC3000™ Fuel Site Controller, OPW tank gauges, most third-party tank gauge systems, as well as most fleet maintenance and back-office software.

Phoenix SQL runs on a server-class network PC and offers complete multi-site polling, card maintenance, reporting and reconciliation. Access the software's intuitive user interface via a web browser, which lets you easily navigate between site, account, card and transaction screens. Phoenix SQL is also designed to retrieve data from multiple TCP/IP-based fuel control systems and tank gauges simultaneously.

Phoenix SQL Lite PC-based software leverages Microsoft SQL Express to deliver comprehensive site reconciliation and powerful data management capabilities from a user-friendly Windows® interface. Phoenix SQL Lite has all of the features of Phoenix SQL, but as a standalone Windows application (as opposed to a web-based application) it is designed for the single-user operations that are common at small and mid-size fuel sites.

Phoenix® Features

Powerful Fuel Management Software Streamlines Data Collection and Reporting



Phoenix SQL® Features

- ◆ Server-based and SQL-enabled – SQL 2008/2012/2014/2016 (Express or Enterprise)
- ◆ Compatible with Windows® 7 32/64 bit, Windows® 8.1 32/64 bit, Windows® 10 32/64 bit, Windows® Server 2008 RC2, Windows® Server 2012, Windows® Server 2012 RC2
- ◆ Provides simultaneous multi-user access and security features
- ◆ Centralized card database for multiple sites
- ◆ Provides communications through modem, Ethernet or direct connection
- ◆ Intuitive browser-based interface allows users to easily navigate between site, account, card and transaction screens
- ◆ Browser enabled; supported browsers include Internet Explorer 9, 10 and 11; Google Chrome version 45.0.2454.99 or higher; Mozilla Firefox 41.0 or higher

Phoenix SQL Lite™ Features

- ◆ PC-based software leverages Microsoft SQL Express to deliver powerful data management capabilities from a user-friendly Windows® interface
- ◆ Phoenix SQL Lite has all of the features of Phoenix SQL, but as a standalone application it is designed for single-workstation operations
- ◆ Compatible with Windows® 7 32/64 bit, Windows® 8.1 32/64 bit and Windows® 10 32/64 bit, software easily installs on a PC
- ◆ "Help" features guides users through common programming tasks
- ◆ Custom import/export features enhance card data management

Try Phoenix SQL Lite for Free

Sign Up for a 60-Day Free Trial at

www.opwglobal.com/PhoenixTrial

Hardware Requirements

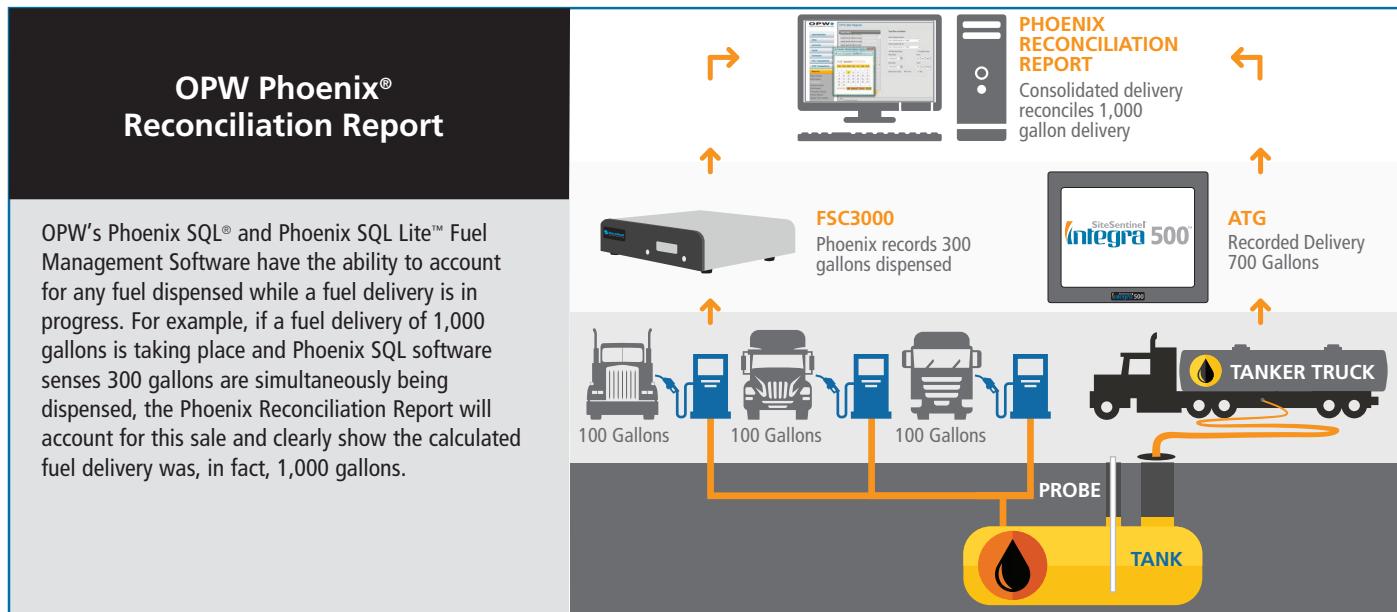
Phoenix SOL®:

- ◆ Runs on multiple Microsoft operating systems (Windows® 7, Windows® 8.1, Windows® 10, Windows® Server 2008 RC2, Windows® Server 2012, Windows® Server 2012 RC2)
 - ◆ Windows® PC or Server with Quad Core, 2.4 GHz or faster processor
 - ◆ At least 8 GB of RAM, DVD-ROM drive, 120 GB hard disk space

- ◆ 10/100/1000 LAN connection, Internet access for activating software, and serial port if direct connect or modem feature is used
 - ◆ Internet Information Services (IIS) 7.5 or higher

Phoenix SQL Lite™

- ◆ A Windows® PC with 2 GHz or higher processor speed running Windows® 7 32/64 bit, Windows® 8.1 32/64 bit or Windows® 10 32/64 bit; 120 GB hard disk space; 1024 x 768 display



Data Management and Reporting, Streamlined and Simplified

Export Data in Many Formats



Complete Reports Package



Site Reports



Transactions Reports



Account Reports



Product Reports



Card
Reports



Support Tables Reports

NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

Petro Vend 100® Fuel Control System

OPW Fuel Management Systems' Petro Vend 100® (PV100®) Fuel Control System is a stand-alone, pedestal-mounted system that controls up to 4 hoses for small or mid-sized unattended fleet-fueling sites.

As a "turnkey system," the unit is designed for quick and easy installation. It ships ready-to-use with 50 pre-configured users for immediate fueling access. Requiring only power, pulser and hose-control line connections in order to initiate system operation, the PV100 saves the time and cost of trenching and pulling wires for serial communications.

Now featuring expanded hose and card capabilities, the OPW Petro Vend 100® is designed to grow with your application. Scale up from 50 to 250 or 1,000 users and from 2 to 4 fueling points. The PV100 now also offers dual card operation and an optional ChipKey® reader, which supports the K800 (8-digit) format.

User-selectable PINs allow only authorized users to access fuel. The PV100 tracks and reports fueling by card or pump totals to provide complete accountability of fueling. The PV100 stores dispensed fuel amounts as card- and pump-specific totals, which can be viewed on the display or retrieved with an external USB flash drive.

Because menu-driven configuration takes place at the terminal, the PV100 also eliminates the need for PC-required software, making the Petro Vend 100 one of the most cost-effective fuel control systems available on the market today.

Petro Vend 100® Fuel Control System Features



Serving these industries and many others...



Scalable

Upgradeable feature set delivers cost-effective fuel management capabilities needed by small and mid-size fleets while accommodating expanding needs



Easy to Install

Turnkey system only requires power and hose control connections, eliminating the need to trench and pull wires for communications



User-friendly

Simple menus make the OPW Petro Vend 100® an especially easy fuel control system to learn and operate



Cost-effective

Menu-driven configuration takes place at the terminal, eliminating the need for PC-required software. An optional feature provides individual transaction storage on a USB flash drive

Features

- ◆ NEW! Controls up to four (4) hoses for mechanical pumps
- ◆ Allows you to adjust programming parameters, view card and pump totals, and transfer all data to a USB flash drive via Manager Card access in on-screen manager modes
- ◆ Track and report fueling by card or pump totals (single, driver and vehicle). See screen visuals on next page.
- ◆ External USB connection allows retrieval of card totals, pump totals and optional transaction data on a flash drive.
- ◆ User-selectable PINs, from three (3) to six (6) digits in length, allowing only authorized users to access fuel
- ◆ Hose-based quantity restrictions
- ◆ NEW! 3 pedestal sizes are available, including sizes that meet Americans with Disabilities Act requirements
- ◆ Thermostatically controlled heater provides reliable operation in the harshest environments

Listings and Certifications



Electronic Testing Labs (ETL), per Underwriter Laboratories UL 1238
Electronic Testing Labs Canada (ETLC), per CSA C22.2

- ◆ **NEW!** User-selectable predefined prompt up to ten (10) digits in length – choose one from ten available messages, such as Driver ID, Vehicle ID, Odometer, PO #, etc.
- ◆ Optional dual-head magnetic card reader
- ◆ Optional HID proximity key-fob reader
- ◆ **NEW!** Optional ChipKey® reader supports K800 format (8-digit)
- ◆ Field upgradeable software

Benefits

- ◆ Upgradeable feature set makes the PV100 a cost-effective solution for small and large fleet-fueling operations
- ◆ Stand-alone system significantly reduces installation costs
- ◆ Turnkey operation requires minimal configuration, enabling quick startup
- ◆ Dispensed fuel totals are recorded even during pump override control mode
- ◆ **NEW!** Driver and vehicle card capabilities allow dual card operation

- ◆ Menu-driven configuration takes place at the terminal, eliminating the need for PC-required software
- ◆ **NEW!** Pedestal features durable aluminum construction to prevent rusting

Memory

- ◆ Standard memory allows tracking of up to 50 proprietary cards
- ◆ **NEW!** Expandable to 250 or 1,000 proprietary cards
- ◆ Stores virtually unlimited number of transactions on USB flash drive (optional)

Technical Specifications

- ◆ Cabinet Dimensions: 10.75 inch H x 14.25 inch W x 9.75 inch D (27.3 cm x 36.2 cm x 24.8 cm)
- ◆ Pedestal Dimensions: 40 inch H x 14 inch W x 9 inch D (122 cm x 36 cm x 23 cm) is standard; 32-inch and 48-inch heights are optional

- ◆ Power Requirements: 115 VAC, 50/60 Hz, 200 watts maximum
- ◆ Operating Temperature Range: -40° F to 122° F (-40° C to 50° C)
- ◆ Graphics display: 6 inch (15.2 cm) monochrome
- ◆ Painted steel enclosure

Mechanical Pump Control Specifications (PCM)

- ◆ Relay Contact Rating: 240 VAC; 20 A, 3.0 HP maximum
- ◆ "In-Use" Detection: Voltage Sense 120-240 VAC or Handle Switch
- ◆ Pulser Type: Single Channel
- ◆ Pulser Input: Mechanical (contact); Electronic (5-12 VDC)
- ◆ Pulser Divide Rate: 1:1 – 1000:1; 1 pulse increments
- ◆ Maximum Pulse Speed: (50% duty cycle) 6,000 Mechanical; 100,000 Electronic

Card totals

Manager Setup Mode		
Version : 3.01.02d		
	Pump 1 & 3	Pump 2 & 4
0001	0.000	0.000
	0.000	0.000
0002	0.000	0.000
	0.000	0.000
0003	0.000	0.000
	0.000	+5 →
0004	0.000	0.000
	0.000	0.000
0005	0.000	0.000
	0.000	+50 →

Pump totals

Manager Setup Mode		
Version : 3.01.02d		
Pump	Total	Totalizer
1	0.000	0.000
2	0.000	0.000
3	0.000	0.000
4	0.000	0.000

Press Clear to exit

C/OPT™ Fuel Control System

Now with the flexibility of having the FSC3000™ within the Fuel Island Terminal, Petro Vend's C/OPT™ offers the ability to operate as a stand-alone system. The C/OPT interfaces with many networks to accept a wide range of commercial fueling and bank cards, making it a superior choice for 24-7 unattended fuel control.

With a wide variety of options available, the C/OPT Fuel Control System is one of the most comprehensive solutions for your fleet fueling or petroleum marketing application.

Features

- ◆ Each FSC3000™ can control up to 8 Fuel Island Terminals with a maximum of 32 hoses per site
- ◆ Graphics display guides users through the fueling process with pictures and text
- ◆ Accepts dual readers including magnetic, proximity and ChipKey® for maximum flexibility and reliability
- ◆ 3 pedestal sizes are available, including sizes that meet Americans with Disabilities Act requirements
- ◆ Optional full alpha keypad allows entry of vehicle tags and other alpha information
- ◆ "Smart" weather shield automatically closes to protect card readers and receipt chute
- ◆ Fiber-optically lit keypads and LED backlit display for easy fueling at night
- ◆ Optional thermal receipt printer
- ◆ USB memory key for transaction data storage and card updates
- ◆ Optional dial-up or cell modem allows communication to remote locations
- ◆ Wired Ethernet port or optional wireless Ethernet communication

C/OPT™ Fuel Control System Features



C/OPT™

Up to 8 C/OPT™ Fuel Island Terminals (FITS) used by drivers at the island to activate the fuel dispensers



FSC3000™



Electronic transaction recording & card updates



Profitability

Accepts the widest selection of fueling network and major bank cards.



Easy To Use

Customizable prompts provide driver clarity. ARTWare™ PC software makes configuration a snap.



Easy Installation

FSC3000™ may be integrated into the C/OPT for installations where no building is available.



Communication

Optional 900 MHz wireless communication between island and building. Cell modem and wireless Ethernet communication also available.

- ◆ PCI compliance via multi-tracking application PA-DSS (Payment Application Data Security Standard) for the FSC3000™ Fuel Site Controller
- ◆ USB memory key for transaction data storage and card updates
- ◆ Individual drivers and vehicles can be grouped into accounts for easier control of group restrictions and lockouts

- ◆ Daily and monthly credit allocations per card/key/account lets you set fueling restrictions
- ◆ Selectable automatic lockout after three incorrect PIN entries for added security
- ◆ Dual card accountability allows tracking and reporting on drivers using multiple vehicles
- ◆ Communication ports allow for journal printer, PC, serial pass-through port, modem and Petro-Net™ connection
- ◆ Wireless Petro-Net™ communication reduces installation costs
- ◆ Odometer reasonability checking ensures accurate odometer entries
- ◆ Nine-character "name field" makes card record reporting more complete
- ◆ Cardless/keyless access allows drivers to fuel using a quick keypad entry
- ◆ Optional journal printer for transaction log and report

Networks

- ◆ The C/OPT™ System interfaces with many authorization and commercial fueling networks to accept the following cards:
 - CFN
 - Fuelman®/Gascard
 - T-Chek™
 - Bank cards
 - Comdata
 - Pacific Pride
 - Voyager
 - Fleet One®
 - EFS
 - TCH
 - WEX

Listings and Certifications



Networks (continued)

- ◆ The registered bankcard feature permits 24-hour fueling in areas where unattended fueling is generally restricted
- ◆ The C/OPT™ System is field-upgradeable so you can easily add network interfaces to meet any needs

Pump Control Methods

- ◆ Pump Control Modules for Commercial Dispensers with mechanical registers
 - Mounted in Fuel Island Terminal for low-cost, convenient wiring
 - Mounted in remote cabinet
 - Pump handle monitor
 - Manual bypass for each dispenser
 - Four adjustable fueling timers
 - Maximum fueling time
 - Maximum time to activate pump handle
 - Maximum time until first pulse
 - Maximum time between pulses
 - Counts in gallons or liters from thousandths to full units
 - Pump sentry provides protection from faulty pulsers
- ◆ Direct Pump Control communicates via serial link to the dispensers (Optional)
 - Supports Wayne and Gilbarco protocols
 - Extremely simple installation
- ◆ Universal Pump Controller for operation with a pump controller (Optional)
 - Interfaces with Wayne and Gilbarco dispensers
 - Allows pumps to be controlled via the Fuel Island Terminal or retail pump console

Memory

- ◆ Standard memory offers 2,000 proprietary cards, and 500 transactions
- ◆ Expandable to 64,000 proprietary cards, and 2,000 transactions

Phoenix® Software

- ◆ Phoenix Plus™ – poll transactions, perform card updates, run reports

- ◆ Phoenix Premier™ – all of the Phoenix Plus features, plus tank gauge interface for reconciliation
- ◆ Phoenix SQL® – a Web-based multiuser browser interface with controlled user access. Polls transactions and tank gauges simultaneously, dramatically reducing data collection times for multiple fuel sites
- ◆ Phoenix SQL Lite™ – Offers all of the features of Phoenix SQL, but as a standalone Windows® application it is designed for single-user operations

C/OPT™ Fuel Island Terminal Specifications

Readers: Magnetic-stripe Card, ChipKey®, Proximity Reader

Displays: Standard Graphics (3 x 4 inches; 320 x 240 pixels).

Receipt Printer (optional): the high-resolution, thermal receipt printer has an integral cutter and large paper roll

Keypads (standard and optional alpha): keypads are constructed of a UV-stable weather-resistant material over stainless steel contacts

Cabinet Dimensions [H x W x D]:
15 x 18.5 x 11 inches (38 x 46 x 28 cm)

Pedestal Dimensions [H x W x D]:
48 x 14 x 8 inches (122 x 36 x 20 cm); 32-inch and 40-inch heights are optional

Operating Temperature Range:
-40° F to 122° F (-40° C to 50° C)

Power Requirements: 120/240 VAC (auto detectable), 50/60 Hz; 250 watts max.

FSC3000™ Fuel Site Controller Specifications

Dimensions [H x W x D]: 2.25 x 10.0 x 8.25 inches (5.7 x 25.4 x 21 cm)

Power Requirements: 85-240 VAC, 50/60 Hz; 25 watts max.

Operating Temperature Range (indoors): 32° F to 122° F (0° C to 50° C)

Serial Communication Ports:

Petro-Net™ (RS-485), Printer (RS-232), Terminal (RS-232), Modem (RS-232), Pass-through (RS-232), 2 Auxiliary Ports (RS-232), Tank Gauge, Ethernet, USB

Maximum Petro-Net™ Distance:
5,000 feet (1524 m)

Pump Control Module Specifications

Relay Rating: 1 HP, 120/240 VAC

Pulser Compatibility: Contact/12 VDC electronic

Pulser Power Supply: 12 VDC; 40 milliamps max./pulser

Pulser Speed: 6,000 pulses/minute (mechanical) 100,000 pulses per minute (electronic)

Pulser Rate: 1:1 to 9,999:1 (in one-pulse increments)

Pulser Type: Single channel

Pulser Duty Cycle: 50%

Operating Temperature Range:
-40° F to 122° F (-40° C to 50° C)

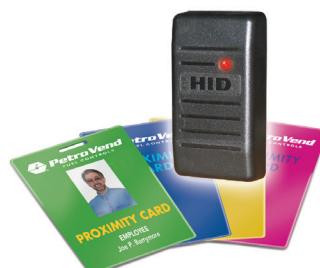
Cabinet Dimensions of wall-mounted remote PCM [H x W x D]: 11.5 x 12 x 6.5 inches (29 x 30 x 16 cm)

Power Requirements for Remote PCM:
85-240 VAC, 50/60 Hz; 25 watts max.

Operating Temperature Range of Remote PCM: -40°F to 122°F (-40°C to 50°C)



The rugged, tamper-resistant ChipKey® is a popular alternative to cards. Every ChipKey® contains a microchip that can be programmed and reprogrammed as many times as you like.



With the proximity reader option installed in your C/OPT™, fueling access is either granted or denied when a cardholder waves their proximity card within a few inches of the reader.

NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

The FIT500™ Fuel Control System

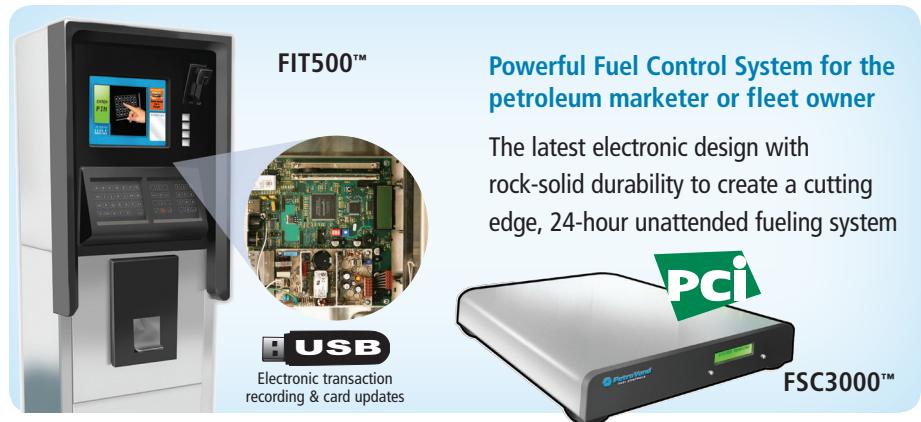
Capable of displaying customized marketing messages and accepting numerous commercial fueling and bank cards, the FIT500™ Fuel Management System delivers much more than fuel control.

The FIT500™ provides advanced 24-hour fuel control to commercial fueling sites through leading edge technology and stainless steel durability. The FIT500's customizable display enables petroleum marketers to drive sales inside the store by strengthening brand identity through promotional messaging at the fuel island.

Benefits

- ◆ Stainless steel enclosure for years of maintenance-free operation
- ◆ Dual-head card reader
- ◆ High-speed, auto-loading, thermal receipt printer with graphics capability
- ◆ Impressive 10.4 in (26.4 cm) graphics color display
- ◆ Add custom color graphics to FIT500's screen images with a USB memory key
- ◆ Metal alpha-numeric function key pads
- ◆ Accepts the widest selection of commercial fueling cards, truck fleet cards and major bank cards
- ◆ Because system is field-upgradeable, network interfaces can be added remotely
- ◆ Ideal for marine and ethanol fueling applications
- ◆ USB memory key for transaction backup/transfer and updating card files
- ◆ Optional dial-up modem, cellular modem or Ethernet bridge for remote transaction polling and card updates
- ◆ Optional 900 MHz wireless communication between island and building

The FIT500™ Fuel Control System Features



Profitability

Accepts the widest selection of commercial fueling cards, truck fleet cards and major bank cards.



Customize

Customizable color screen images enhance marketing programs and activities.



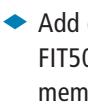
Easy Installation

FSC3000™ Fuel Site Controller can be integrated inside terminal for sites with no building.



Communication

Optional dial-up modem, cellular modem or Ethernet bridge for remote transaction polling and card updates. Optional 900 MHz wireless communication between island and building is also available.



- ◆ Add custom color graphics to FIT500's screen images with a USB memory key
- ◆ Change receipt paper without opening the FIT500™ enclosure
- ◆ Windows-based ARTWare™ PC software makes programming simple and provides system backup

Powerful Fuel Control System for the petroleum marketer or fleet owner

The latest electronic design with rock-solid durability to create a cutting edge, 24-hour unattended fueling system



- ◆ System management can be performed on-site or remotely via dial-up, cell modem or LAN/WAN connection
- ◆ Remotely download software updates to the FSC3000™
- ◆ USB memory key for transaction backup/transfer and updating card files
- ◆ Pump and product totals automatically or on demand
- ◆ System and dual card (driver and vehicle) operation
- ◆ Cardless operation for driver, vehicle or both
- ◆ Drivers and vehicles can be grouped into accounts for easier control of group restrictions, lockouts and reporting
- ◆ Daily and monthly credit allocations per card or account
- ◆ PCI-compliance via multi-tracking application PA-DSS (Payment Application Data Security Standard) for the FSC3000™ Fuel Site Controller
- ◆ ADA-compliant pedestal option available

Listings and Certifications



Intertek

Networks

- ◆ The FIT500™ System interfaces with many authorization and commercial fueling networks to accept the following cards:
 - CFN
 - WEX
 - Comdata
 - Voyager
 - EFS
 - Bank cards
 - Fuelman®/Gascard
 - Bypass
 - Paymentech
 - Pacific Pride
 - T-Chek™
 - Fleet One®
 - TCH
- ◆ Dual network option reduces wait time by accessing two (2) networks simultaneously
- ◆ Registered bank card feature enables secure use of credit cards even where unattended fuel may be restricted
- ◆ The FIT500™ System is field-upgradeable so you can easily add network interfaces to meet any needs

Memory

- ◆ Standard memory tracks 2,000 proprietary cards and 500 transactions
- ◆ Expandable to 64,000 proprietary cards and 2,000 transactions

Pump Control Methods

- ◆ Pump Control Modules for Commercial Dispensers with mechanical registers
 - Mounted in Fuel Island Terminal for low-cost, convenient wiring
 - Mounted in remote cabinet
 - Pump Handle Monitor
 - Manual bypass for each dispenser
 - Four (4) adjustable fueling timers
 - Maximum fueling time
 - Maximum time to activate pump handle
 - Maximum time until first pulse
 - Maximum time between pulses
 - Counts in gallons or liters from thousandths to full units
 - Pump sentry provides protection from faulty pulsers

- ◆ Optional Direct Pump Control communication via current loop for Gilbarco and Wayne or via RS-485 communication for Gasboy® dispensers
 - Extremely simple installation
- ◆ Universal Pump Controller for operation with a pump controller (optional)
 - Interfaces with Wayne and Gilbarco dispensers
 - Allows pumps to be controlled via the Fuel Island Terminal or retail pump console

Phoenix® Software

- ◆ Phoenix Plus™ – poll transactions, perform card updates, run reports
- ◆ Phoenix Premier™ – all of the Phoenix Plus features, plus tank gauge interface for reconciliation
- ◆ Phoenix SQL® – a Web-based multiuser browser interface with controlled user access. Polls transactions and tank gauges simultaneously, dramatically reducing data collection times for multiple fuel sites.
- ◆ Phoenix SQL Lite™ – Offers all of the features of Phoenix SQL, but as a standalone Windows® application it is designed for single user operations

FIT500™ Fuel Island Terminal Specifications

Reader: Magnetic-stripe card with dual-read heads

Display: 10.4 in (nominal size), Active Matrix VGA Color Display

Receipt Printer: The high-resolution, thermal receipt printer has an integral cutter and large paper roll

Keypads: The keypads are durable and weather-resistant

Cabinet Dimensions [H x W x D]:
20.0 x 17.75 x 11.38 inches
(38.0 x 46.0 x 28.0 cm)

Pedestal Dimensions [H x W x D]:
42.0 x 17.75 x 9.0 inches
(122 x 36.0 x 20.0 cm)

Operating Temperature Range:

-40°F to 122°F (-40°C to 50°C)

Power Requirements: 120/240 VAC (auto detectable), 50/60 Hz; 250 watts max.

Pump Control Terminal Specifications

Relay Rating: 1 HP, 120/240 VAC

Pulser Compatibility: Contact/12 VDC electronic

Pulser Power Supply: 12 VDC; 40 mA max./pulser

Pulser Speed: 6,000 pulses/minute (mechanical)
100,000 pulses/minute (electronic)

Pulser Rate: 1:1 to 9,999:1 (in one-pulse increments)

Pulser Type: Single channel

Pulser Duty Cycle: 50%

Operating Temperature Range:
-40°F to 122°F (-40°C to 50°C)

Cabinet Dimensions [H x W x D] of wall-mounted remote PCM: 11.5 x 12.0 x 6.5 inches (29.0 x 30.0 x 16.0 cm)

Power Requirements of Remote PCM:
85-240 VAC, 50/60 Hz; 25 watts max.

Operating Temperature Range of Remote PCM: -40°F to 122°F (-40°C to 50°C)

FSC3000™ Fuel Site Controller Specifications

Dimensions [H x W x D]:
2.25 x 10.0 x 8.25 inches
(5.7 x 25.4 x 21.0 cm)

Power Requirements: 85-240 VAC, 50/60 Hz; 25 watts max.

Operating Temperature Range (indoors): 32°F to 122°F (0°C to 50°C)

Serial Communication Ports: Petro-Net™ (RS-485), Printer (RS-232), Terminal (RS-232), Modem (RS-232), Pass-through (RS-232), two (2) Auxiliary Ports (RS-232), Tank Gauge, Ethernet, USB

Maximum Petro-Net™ Distance: 5,000 ft (1,524 m)

NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

K800™ Hybrid Fuel Control System

Now with the flexibility of having the fuel site controller within the Fuel Island Terminal as a standalone system for sites that require outdoor installations, or as a separate unit indoors.

Whether operating a small fleet with a single fuel site or a large fleet with multiple sites, the Petro Vend K800™ Hybrid Fuel Control System can help you improve the management of your unattended fueling operations by controlling one of your biggest assets and expenses – your fuel.

Benefits

- ◆ Ideal for small private fleets needing a low-cost fuel management solution
- ◆ Each Fuel Island Terminal controls up to 4 mechanical dispensers
- ◆ Each FSC3000™ can control up to eight (8) FITs with a maximum of 32 hoses per site
- ◆ Backlit LCD provides enhanced visibility in bright sunlight and at night
- ◆ Programmable prompts to guide drivers through the fueling process
- ◆ Durable metal keypad, 16-gauge steel enclosure and thermostatically controlled heater for reliable operation in the harshest environments
- ◆ Downloadable software for easy system upgrades
- ◆ USB memory key for transaction backup/transfer and updating card files
- ◆ Optional dial-up modem, cellular modem or Ethernet bridge for remote transaction polling and card updates
- ◆ Optional 900 MHz wireless communication between island and building

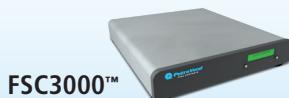
K800™ Hybrid Fuel Control System Features



Easy to install, use and maintain, the K800™ Hybrid Fuel Control System is ideal for small private fleets needing a low cost fuel management solution.



PCI
Electronic transaction recording & card updates



Savings

Ideal for small private fleets needing a low-cost fuel management solution.



Easy-to-Use

Customizable prompts for driver clarity. ARTWare™ PC software makes configuration a snap.



Easy Installation

Integrated FSC3000™ for installations where no building is available. USB key for transaction backup and card file updates.



Communication

Optional dial-up modem, cellular modem or Ethernet bridge for remote transaction polling and card updates. Optional 900 MHz wireless communication between island and building is also available.

- ◆ Windows-based ARTWare™ PC software makes programming simple and provides system backup
- ◆ System management easily performed on-site or remotely via dial up, cell modem or LAN/WAN

- ◆ Pump and product totals automatically or on demand
- ◆ Daily and monthly allocation amounts
- ◆ Sixteen quantity restriction levels; sixteen product restriction combinations
- ◆ Odometer or hour meter recording
- ◆ User can be prompted to enter miscellaneous data of up to ten (10) digits (job, vehicle, ID, etc.)
- ◆ Single or dual card/key/cardless entry operation (driver/vehicle number)
- ◆ Cards can be assigned to accounts or departments
- ◆ Card/key/account lockout
- ◆ Programmable K800™ Fuel Island Terminal displays messages and user prompts
- ◆ A price may be assigned to each product to be recorded for each transaction
- ◆ Standard system utilizes magnetic cards; optional proximity card reader available
- ◆ Optional ChipKey® mileage and reasonability
- ◆ Password protection for ultimate security
- ◆ Self-test and diagnostic utilities for start-up and troubleshooting

Listings and Certifications



Additional Features

- ◆ Optional office journal printer
- ◆ USB key for transaction information backup and card updates
- ◆ Optional Bluetooth™ or cell modem communication for remote sites
- ◆ Optional dial-up modem, cellular modem or Ethernet bridge for remote transaction polling and card updates
- ◆ Able to process commercial fueling cards such as WEX, Voyager and others

Memory

- ◆ Standard memory 2,000 proprietary cards, and 500 transactions
- ◆ Expandable to 64,000 proprietary cards, and 2,000 transactions

Pump Control Methods

- ◆ Pump Control Modules for commercial dispensers with mechanical registers
 - Mounted in Fuel Island Terminal for low-cost, convenient wiring
 - Mounted in remote cabinet
 - Pump handle monitor
 - Manual bypass for each dispenser
 - Four adjustable fueling timers
 - Maximum fueling time
 - Maximum time to activate pump handle
 - Maximum time until first pulse
 - Maximum time between pulses
 - Counts in gallons or liters from thousandths to full units
 - Pump sentry provides protection from faulty pulsers

- ◆ Optional Direct Pump Control communication via current loop for Gilbarco and Wayne or via RS-485 communication for Gasboy® dispensers
 - Extremely simple installation
- ◆ Universal Pump Controller for operation with a pump controller (optional)

K800™ Hybrid Fuel Island Terminal Specifications

Readers (any one of the following):

- Magnetic-Stripe Card
- ChipKey® (optional)
- HID Proximity Card/Key (optional)

Display: 2 line x 16 character backlit LCD

Enclosure Dimensions [H x W x D]:

12 x 13 x 10 inches (30.5 x 33 x 25.5 cm)

Power Requirements: 120/230 VAC
50-60 Hz 100 watts max.

Operating Temperature: -40° F to 122° F (-40° C to 50° C)

Pump Control Terminal Specifications

Relay Rating: 1 HP, 120/240 VAC

Pulser Compatibility: Contact/12 VDC Electronic

Pulser Power Supply: 12 VDC; 40 mA max./pulser

Pulser Speed: 6,000 pulses/minute (mechanical)
100,000 pulses per minute (electronic)

Pulser Rate: 1:1 to 1,000:1 (in one-pulse increments)

Pulser Type: Single channel

Pulser Duty Cycle: 50%

Operating Temperature Range:
-40° F to 122° F (-40° C to 50° C)

Phoenix® Software

- ◆ Phoenix Plus™ – polls transactions, performs card updates, runs reports
- ◆ Phoenix Premier™ – all of the Phoenix Plus features, plus tank gauge interface for reconciliation
- ◆ Phoenix SQL® – a Web-based multiuser browser interface with controlled user access. Polls transactions and tank gauges simultaneously, dramatically reducing data collection times for multiple fuel sites
- ◆ Phoenix SQL Lite™ – Offers all of the features of Phoenix SQL, but as a standalone Windows® application it is designed for single user operations

FSC3000™ Fuel Site Controller Specifications

Dimensions [H x W x D]: 2.25 x 10 x 8.25 inches D (5.7 x 25.4 x 21 cm)

Power Requirements: 85-240 VAC, 50/60 Hz; 25 watts max.

Operating Temperature Range (indoors): 32° F to 122° F (0° C to 50° C)

Serial Communication Ports: Petro-Net™ (RS-485), Printer (RS-232), Terminal (RS-232), Modem (RS-232), Pass-through (RS-232), two (2) Auxiliary Ports (RS-232), Tank Gauge, Ethernet, USB

Maximum Petro-Net™ Distance:
5,000 feet (1,524 m)

NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

K800™ Fuel Control System

Be in control of your unattended fueling operation with Petro Vend's K800™ Fuel Control System. The K800™ provides you with the tools you need to manage your fuel expenses. Fuel access is restricted to authorized users, and set to the fuel type and quantity you specify. Every transaction is tracked, giving you the security and accountability your unattended fueling operation needs.

K800™ System Features

Fuel Site Controller (FSC) the hub of the system - stores transactions and connects peripherals

Up to four (4) K800™ Fuel Island Terminals (FIT) can be connected per location

K800™ FIT



K800™ Fuel Site Controller

K800™ FIT Features

- ◆ Backlit LCD for visibility in bright sunlight or at night
- ◆ Programmable prompts to guide drivers through the fueling process
- ◆ Durable alloy keypad, 16-gauge steel enclosure and thermostatically-controlled heater for reliable operation in the harshest environments
- ◆ High-impact plastic door overlay and powder-coated enclosure and matching pedestal maintain their appearance for years to come
- ◆ Built-in diagnostics for simplified troubleshooting
- ◆ Built-in pulser power supply, pump control and pre-punched conduit access for easy installation
- ◆ Can be activated either by card (optical or magnetic-stripe), ChipKey® or code activated
- ◆ Manual bypass switch for each hose
- ◆ Four (4) adjustable fueling timers per hose position

K800™ Fuel Site Controller Features

- ◆ Controls up to four (4) Fuel Island Terminals and 16 hoses simultaneously to meet your needs today and tomorrow
- ◆ Up to 10,000 cards and 1,800 transactions can be stored in memory
- ◆ Menu-driven programming with on-screen help for ease of use
- ◆ Serial communication ports for printer, PC and modem
- ◆ Desktop controller can also be conveniently wall-mounted
- ◆ Easily interfaces to existing personal computers
- ◆ Dual card accountability allows tracking and reporting on drivers using multiple vehicles
- ◆ Cardless/keyless access allows drivers to fuel using a quick keypad entry
- ◆ ChipKey® mileage reasonability option ensures accuracy of odometer entries
- ◆ Lock-out any key or card
- ◆ Provides basic inventory tracking
- ◆ Wireless Petro-Net™ communication reduces installation costs
- ◆ Provides four (4) levels of authorized time access

Listings and Certifications



Additional Features

- ◆ Restricts product and quantity for any key, card or account
- ◆ Restricts number of transactions per day for any key or card
- ◆ Adjustable pump time-outs
- ◆ Pump handle monitor and pulser sentry
- ◆ Diagnostic test programs for system start-up and troubleshooting
- ◆ Standard report package groups cards together by account and provides itemized reports including MPG, CPM and price extensions
- ◆ Personal Identification Number (PIN) entry with auto-lockout
- ◆ Inventory, pump and product total reports



The rugged, tamper-resistant ChipKey® is a popular alternative to cards. It fits easily onto a customer's key ring, so it's convenient and hard to lose. Every ChipKey® contains a microchip that can be programmed and reprogrammed as many times as you like.

K800™ Fuel Island Terminal Specifications

Readers: Magnetic-stripe card, ChipKey®

Display: Backlit LCD (two lines x 16 characters)

Keypad: Durable alloy keypad

Cabinet Dimensions [H x W x D]: 2.0 x 9.0 x 11.0 inches (5.0 x 23.0 x 28.0 cm)

Pedestal Dimensions [H x W x D]: 48.0 x 14.0 x 8.0 inches (122 x 36.0 x 20.0 cm)

Operating Temperature Range:
- 40°F to 122°F (- 40°C to 50°C)

Power Requirements: 120/230 VAC,
50/60 Hz; 100 watts max.

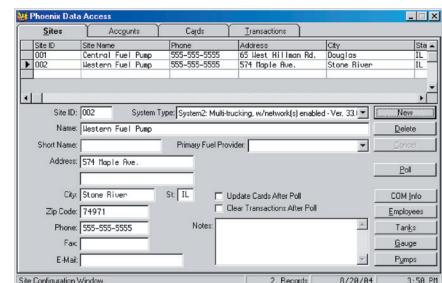
K800™ Fuel Site Controller Specifications

Cabinet Dimensions [H x W x D]: 2.0 x 9.0 x 11.0 inches (5.0 x 23.0 x 28.0 cm)

Operating Temperature Range: 32°F to 122°F (0°C to 50°C)

Power Requirements: 120/230 VAC,
50-60 Hz; 50 watts max.

Maximum Petro-Net™ Distance:
5,000 ft (1,524 m)



Phoenix Plus™ and Phoenix Premier™ are powerful fuel management software packages for your Windows®-compatible PC.

NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

AFC™ Fuel Control System

With the AFC™ Fuel Control System managing your fleet, you'll never have to wonder when vehicle maintenance is due, who gets which fuel type, where your fuel goes, or how to keep track of your vehicles.

This turn-key fuel control system for small to mid-size fleets is easy to use and set up. The AFC's™ durable, weather-resistant stainless-steel construction ensures years of uninterrupted service. And because it's modular, maintenance can be accomplished quickly, reducing downtime and operating costs.

AFC™ System Features

One Stand-Alone AFC™ Terminal can control up to 4 fueling positions.



- ◆ Durable stainless-steel enclosure and pedestal
- ◆ System configuration via remote PC
- ◆ Track declining tank inventory, with low-level alert and programmable pump deactivation levels
- ◆ Access the AFC™ with the traditional magnetic card, system keypad or the durable DuraKey™
- ◆ Lithium battery protects stored transaction data during power losses
- ◆ Weather shields guard card/DuraKey™ reader ensuring uninterrupted operation in the most inclement weather
- ◆ Standard display heater ensures normal operation in cold temperatures
- ◆ Selectable maximum fuel by fueling position
- ◆ Selectable automatic shift change
- ◆ Deactivation on pulser failure
- ◆ Department discounts
- ◆ Capacity:
 - 255 departments
 - 16 fuel types
 - Up to four (4) fueling positions
- 999 stored transactions
- Two (2) and four (4) hose capacity
- 10,000 card/DuraKey™ capacity
- ◆ Fleet management features include:
 - Odometer reasonability
 - Vehicle classification
 - Maintenance alerts and lockout
 - Fueling restriction by fuel type/quantity
 - Taxable and nontaxable fuel totals
 - Programmable user prompts
- ◆ Fuel management features include:
 - Fuel type and assignment report
 - Fuel type pricing
 - Security against product theft
 - Totals by fuel type and fuel position
 - Totals by shift
 - Grand totals
 - Running totals
- ◆ Automatically keeps track of all transactions by vehicle, driver and department, eliminating manual record keeping
- ◆ Accumulates information on card/DuraKey™ numbers, date and time of access, hose number, and amount fueled

Listings and Certifications



Additional AFC™ Features

- ◆ Provides comprehensive reports for critical fuel management decisions
- ◆ Administrator PC software is used to program vehicles, drivers, personal identification numbers, limits, etc.
- ◆ ASCII utility exports data to third-party software packages
- ◆ Historical totalizer readings provide data for inventory reconciliation
- ◆ Installation and service features include:
 - Pre-punched conduit termination panel simplifies installation

- Field wiring terminals are clearly marked and easily accessible in the spacious enclosure
- Modular design makes servicing the AFC™ easy
- Fewer cable connections minimize maintenance and decrease service time
- Manual override switches allow you to bypass the card system if the unit is not operational

AFC™ Specifications

Readers: Magnetic-stripe card, DuraKey™

Display: Four (4) line, 20-character backlit display

Cabinet Dimensions [H x D x W]: 10 x 12 x 20 inches (25 x 30 x 51 cm)

Operating Temperature Range:
-40°F to 158°F (-40°C to 70°C)

Input Power: 120/240 VAC,
50/60 Hz, 100 watts

Output Relay Rating:

Motor Duty: 1 HP @ 120 VAC;
3 HP @ 240 VAC

Pulser Supply: 12 VDC, 2.5 W max.

Pulsers

Petro Vend Fuel Control Systems offer a complete family of pulsers to meet your fuel management needs.

Model 500 Features

- ◆ Main shaft and shaft extensions are machined from solid aluminum
- ◆ Intrinsically safe
- ◆ No conduit required between barrier and pulser head
- ◆ Will pulse any voltage 5 to 170 volts AC or DC
- ◆ Compatible with most self-service readout equipment, card and key systems
- ◆ Jumpers used to set pulser for type of pump computer being used
- ◆ Available in 12 VDC, 120 VAC, and 220 VAC pumps/dispensers.
- ◆ Pulses in tenths, hundredths, or cents depending on installation



Model 800-F Features

- ◆ No conduit required between barrier and optical head
- ◆ Will pulse any voltage 5 to 170 volts AC or DC
- ◆ Counts 1/10 gallon per pulse and is designed to work with the Fillrite 800 or 900 series registers
- ◆ Available in 12 VDC, 120 VAC and 220 VAC
- ◆ Compatible with most self-service readout equipment, card and key systems



NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area.

Dispenser Terminal Control (DTC)

Dispenser Terminal Control (DTC) enables a convenient, retail-like fueling experience for end users while providing the fuel control capabilities that cardlock sites need.

OPW's Dispenser Terminal Control (DTC) interface, which when connected to the FSC3000™ Fuel Site Controller, combines the convenience of a Gilbarco CRIND®- or Wayne CAT-equipped retail fuel dispenser with the automated fuel-control functions of a commercial fuel site controller in one system. With the ability to conveniently track and report fueling transactions by driver and vehicle, DTC is ideal for private fleet and cardlock fueling applications.

The DTC interface connects to the FSC3000 in order to emulate a fuel island terminal for each fueling position that is connected to the DTC system. Up to four Gilbarco CRIND®- or Wayne CAT-equipped retail dispensers can be directly connected to the DTC interface. Gilbarco or Wayne distribution boxes can be used when more than 4 dispensers are connected.

Dispenser Terminal Control Features



Easy Installation



Convenient

- ◆ Controls up to 12 in-dispenser card readers/terminals per system
- ◆ Supports Gilbarco CRIND and Wayne CAT in-dispenser card terminals
- ◆ Automatically prompts for receipts
- ◆ Connects to pump manufacturer's distribution box, eliminating the costs of installing additional conduit and wiring from the pump
- ◆ Tracks and reports transactions by driver and vehicle, making it ideal for private fleet and cardlock fueling applications
- ◆ Interfaces with the FSC3000™ to emulate a fuel island terminal for each fueling position that is connected to the DTC system
- ◆ Supports dual card operation, customer-specific prompting, product restriction, quantity limit and more
- ◆ Up to four in-dispenser card readers/terminals can be connected directly to the DTC interface when a distribution box is not available



Easy To Use



Savings

FSC3000™ Fuel Site Controller Features

- ◆ PCI-compliance ensures cardholder data security
- ◆ Driver/Vehicle identification system
- ◆ Optional Future Media price-sign support
- ◆ Optional Tiered Discounts (supports Gasboy-formatted based cards)
- ◆ Optional Tiered Accounts for credit cards and/or proprietary cards/keys to set tier pricing on a user-entered "Account" number
- ◆ Standard memory allows up to 2,000 proprietary cards and 500 transactions
- ◆ Expandable to 64,000 proprietary cards and 2,000 transactions

Listings and Certifications



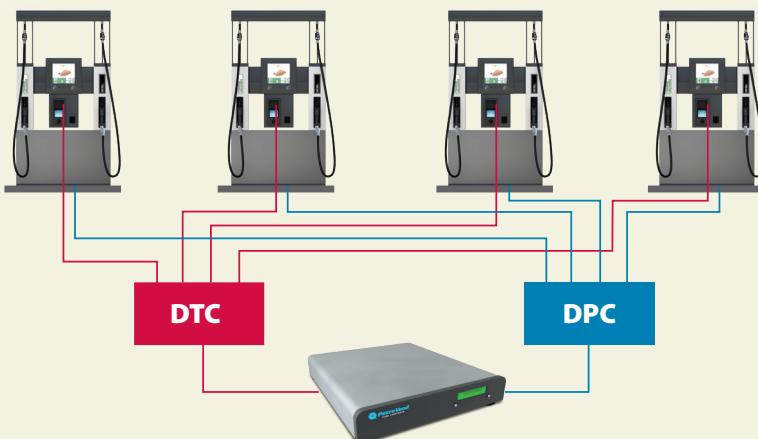
Additional Features

- ◆ The FSC3000™ interfaces with many authorization and commercial fueling networks to accept the following cards:
 - CFN, Bank Cards, TCH, Fuelman®/GASCARD, Comdata, NBS, Paymentech, Fleet One®, WEX, T-Chek™, EFS, Pacific Pride and Buypass
- ◆ Dual Network option reduces wait times by accessing two networks simultaneously
- ◆ The registered bankcard feature permits 24-hour fueling in areas where unattended fueling is generally restricted
- ◆ **NEW!** Optional IP Authorization Gateway, gives the FSC3000™ the capability to use a high-speed Internet connection instead of a dial-up phone line to authorize fleet and credit-card transactions with dial-up backup

Phoenix® Software

- ◆ Phoenix Plus™ – poll transactions, perform card updates, run reports
- ◆ Phoenix Premier™ – all of the

DTC and DPC Interface Configurations



Phoenix Plus features, plus tank-gauge interface for reconciliation

- ◆ **Phoenix SQL®** – a Web-based, multi-user browser interface with controlled user access. Polls transactions and tank gauges simultaneously, dramatically reducing data collection times for multiple fuel sites.
- ◆ **Phoenix SQL Lite™** – Offers all of the features of Phoenix SQL, but as a standalone Windows® application it is designed for single user operations

Direct Pump Control

- ◆ Support for Wayne and Gilbarco dispensers
- ◆ Connects directly to pump manufacturer's distribution box
- ◆ Serial to current-loop communication (Gilbarco or Wayne)

DTC Specifications

Cabinet Dimensions [H x W x D]:

10.0 x 12.5 x 5.7 inches
(25.4 x 31.8 x 14.5 cm)

Power Requirements: 115/230 VAC;
50/60 Hz; 1.0/.06 A

Operating Temperature Range:
-40°F to 122°F (-40°C to 50°C)

FSC3000™ Fuel Site Controller Specifications

Dimensions [H x W x D]:

2.25 x 10.0 x 8.25 inches
(5.7 x 25.4 x 21.0 cm)

Power Requirements: 85-240 VAC,
50/60 Hz; 25 watts maximum

Operating Temperature Range (indoors): 32°F to 122°F (0°C to 50°C)

Serial Communication Ports:

Petro-Net™ (RS-485), Printer (RS-232), Terminal (RS-232), Modem (RS-232), Pass-through (RS-232), two (2) Auxiliary Ports (RS-232), Ethernet, USB

Maximum Petro-Net™ Distance:
5,000 ft (1,524 m)

OPW Communications Technologies

OPW Fuel Management Systems offers several communications technologies engineered to help commercial and retail fuel site managers improve operations. From high-speed Ethernet and cellular connections to wireless Ethernet and wireless Petro-Net connections, OPW offers solutions that help operators overcome common fuel management communications infrastructure challenges. OPW's suite of communications technologies includes network authorization, on-site communication and Phoenix® communication devices to address a wide variety of site configuration needs.

Many Networks

OPW's Ethernet IP Authorization Gateway and Cellular IP Authorization Gateway are certified to communicate with:

Networks:

- Buypass
- Chase Paymentech™
- NBS

Fleet Hosts:

- Comdata
- CFN
- EFS
- Fleet One
- Pacific Pride
- T-Chek™
- TCH

What is PCI Compliance?

Six leading members of the Payment Card Industry created a joint venture in 2006 to develop, manage and make users aware of security standards aimed at merchants and organizations that store, process or transmit cardholder data as part of payment authorization or settlement when these applications are sold, distributed or licensed to third parties.

OPW Communications Technologies Features



Network Authorization Devices

Ethernet IP Authorization Gateway

Application:

Communicates to card networks to obtain authorizations via a wired Ethernet connection.

Features:

- ◆ Compatible with OPW FSC3000™ Fuel Site Controller
- ◆ 100 Mbps data transmission supports high-speed transaction authorizations
- ◆ Supports inbound and outbound communications
- ◆ PCI compliance ensures cardholder data security
- ◆ Eliminates the need for a dedicated phone line
- ◆ Unlike other converter devices, the IP Authorization Gateway is certified to communicate with payment processors such as Buypass, NBS and Paymentech™ and/or fleet card networks to accept a wide range of cards
- ◆ Plug-and-play

Cellular IP Authorization Gateway

Application:

Communicates to card networks to obtain authorizations via a cellular connection.

Features:

- ◆ Compatible with OPW FSC3000™ Fuel Site Controller
- ◆ 100 Mbps data transmission supports high-speed transaction authorizations
- ◆ Eliminates need for land lines
- ◆ Unlike other converter devices, the IP Authorization Gateway is certified to communicate with payment processors such as Buypass, NBS and Paymentech™ and/or fleet card networks to accept a wide range of cards
- ◆ PCI compliance ensures cardholder data security
- ◆ Verizon or AT&T network plans available

NOTE: See OPW Fuel Management Systems' website at www.opwglobal.com for detailed product literature, manuals and sales representative contact information for your area..

On-Site Communications Devices

Wireless Ethernet

Application:

Facilitates communications bridge between an FSC3000™ Fuel Site Controller or OPW tank gauge and a remote Ethernet connection via a wireless signal.

Features:

- ◆ Provides a cost-effective communication solution to fuel sites where running Ethernet wire may be cost-prohibitive
- ◆ Device's outdoor IP66-rated aluminum enclosure can be mounted on a pole or building
- ◆ For installations where the FSC3000 is mounted inside the FIT, the internal Wireless Ethernet ships factory-mounted on the FSC3000 and includes an antenna integrated into the FIT
- ◆ Transmits communications up to 40 miles line-of-sight
- ◆ 128-bit AES encryption for secure communications

Wireless Petro-Net

Application:

Provides wireless Petro-Net communication between fuel management equipment in place of a 2-wire Petro-Net communication.

Features:

- ◆ A perfect data transmission alternative for sites where running wired Petro-Net communication is either not practical or is cost-prohibitive
- ◆ Can be used in Fuel Control and Tank Gauging applications
- ◆ Fuel Site Controller data is encrypted during transmission
- ◆ Install a wireless Petro-Net network to avoid these and other common obstructions: roads, railroad tracks, water lines, utility right-of-ways

Phoenix Communications

USB Key Two-Way Data Transfer, Dial-In Modem and Inbound-Only Cellular Authorization Gateway

Application:

Pulls site transaction data from FSC3000™ Fuel Site Controller for importing into Phoenix® Fuel Management Software.

Features:

- ◆ **USB Key Two-Way Data Transfer:** Records your transactions in a Phoenix-ready file format using the USB port on the back of an FSC3000. When ready to poll, remove the USB key from the Fuel Site Controller, take it to the PC running the Phoenix software, and copy the file into the Phoenix/Data directory.
- ◆ **Dial-In Modem:** Utilizes standard telephone lines
- ◆ **Cellular Inbound-Only Authorization Gateway:** Enables use of cellular communications; Verizon or AT&T network plans available

Ordering Specifications

Part #	Connection	Supported Networks
20-6000	Wired	CFN, T-Chek, TCH, EFS, Paymentech fleet
20-6005	AT&T Cellular	CFN, T-Chek, TCH, EFS, Paymentech fleet
20-6014	Verizon Cellular	CFN, T-Chek, TCH, EFS, Paymentech fleet
20-6013	Wired	NBS, Fleet One, Comdata, CFN, TCH, T-Chek, EFS, Paymentech, Pacific Pride
20-6015	AT&T Cellular	NBS, Fleet One, Comdata, CFN, TCH, T-Chek, EFS, Paymentech, Pacific Pride
20-6016	Verizon Cellular	NBS, Fleet One, Comdata, CFN, TCH, T-Chek, EFS, Paymentech, Pacific Pride
20-6003	Wired	Bypass, CFN, TCH, T-Chek, EFS, Paymentech
20-6008	AT&T Cellular	Bypass, CFN, TCH, T-Chek, EFS, Paymentech
20-6017	Verizon Cellular	Bypass, CFN, TCH, T-Chek, EFS, Paymentech
20-6012	Wired	IP CONVERTER - IOL
20-6009	AT&T Cellular	INBOUND ONLY
20-6010	Verizon Cellular	INBOUND ONLY