

# **Fluid Secure Installation Instructions**



**Owners Installation, Operation and Safety Manual**

Trak Engineering, Inc. Tallahassee, Florida 32301

## Safety Information

**Warning!** All wiring should be installed in accordance with local, state and national electrical code requirements under NEC/ANSI/NFPA 70. IMC threaded conduit, sealed fittings and proper electrical wiring practices should be adhered to. Improper installation can result in fire, serious bodily injury or death.

**Warning!** Pay attention to the following safety practices.

- 1) Never smoke or use an open flame anywhere near the tanks or dispensers.
- 2) All mechanical joints containing fuel products must be sealed with sealant tape appropriate for the product dispensed.
- 3) Never use any tools near the dispenser or tanks that can create unexpected sparks
- 4) Always have a fire extinguisher available in case of fire
- 5) Always turn off all electrical power when working on any pumps or dispensers.

## FluidSecure Performance Specifications

Voltage - 115VAC, 230VAC, 12VDC,  
24VDC  
Power - .09 watts  
Control - Maximum 3/4hp motor  
Contact - Dry reed switch  
Comm - WiFi 802.11

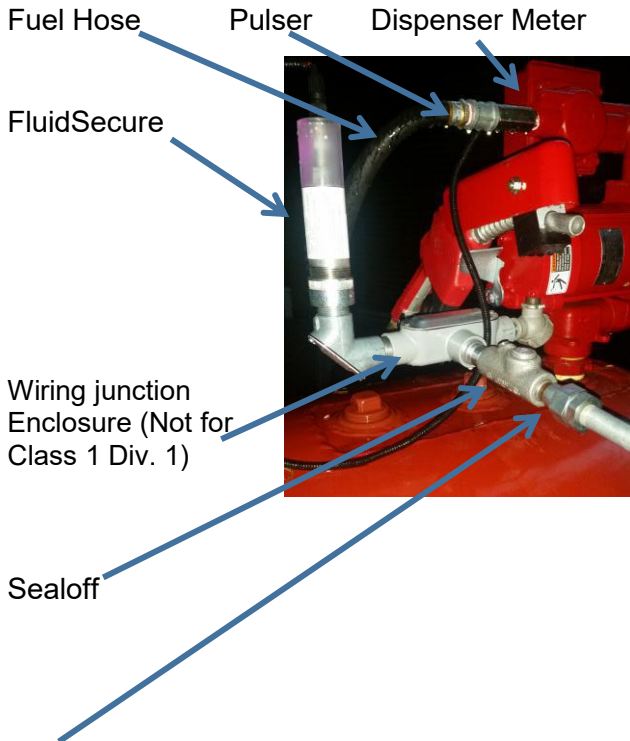
Temp - -40 to +80 C  
Rated - Class 1, Div. 1  
Listing - Pending  
Pulser - +/- 1%

## **A. Installation - Above Ground Tank**

The FluidSecure unit is designed to work with virtually any electrically operated dispenser, pump or solenoid. There are a large variety of dispensing systems and electrical connections and methods of connecting such devices together. It is not the intention of this manual to cover all possible combinations of connections. This manual will cover a “typical” installation however the installer should be sufficiently proficient in all aspects of dispensing systems to be able to understand how a FluidSecure should be installed and to make sound judgments on how to modify a typical installation to suit the needs for any configuration that may and will be different from a typical one explained here.

## **Conduit Connections**

The FluidSecure kit contains the conduit fittings, bodies and connectors to install the FluidSecure unit into a typical dispenser/pump. A typical installation for an above ground tank will look similar to the picture on the next page.



Union to power supply conduit (Sealoff must be last fitting before conduit or cord. Picture shows sealoff and union reversed.)

The picture on the next page shows the parts that are included with a FluidSecure kit.

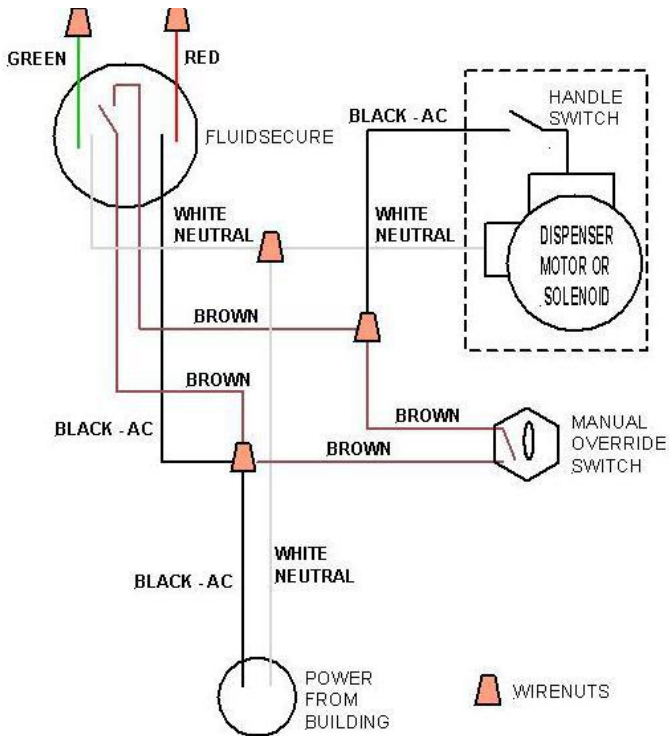


The picture below shows an exploded view of the conduit parts included in the kit



## Wiring Connections

The installation typically involves disconnecting the AC power supply wiring (generally that comes from a nearby building or power source) from the dispenser and re-routing it through the supplied conduit parts that are supplied as part of the kit and re-connecting the wires to the FluidSecure unit and dispenser. See alternate connections for DC hookup.



## Pulsar Installation

The pulsar is installed between the pump and the hose. This will involve removing the hose. This guide shows one of several pulsar types that may be supplied with the system. Regardless of the configuration, each pulsar is marked with an arrow showing the direction of fluid flow. Please note that the included pulsars are shipped with pre-installed adapters that convert the G type thread into a 3/4" NPT female opening. The adapters are O-ring protected into the pulsar. Please ensure that the adapters are secure but do not over tighten. Install with the arrow pointing towards the hose.

**Warning!** Removal of the hose will result in a minor amount of fuel spillage. This can result in a fire hazard and must be handled with extreme care.

- Power to the dispenser must be turned off before attempting.
- Steps must be taken to recover as much of the fuel contained in the hose for return back to the tank.
- A fire extinguisher should be available in case of emergency.
- Use non sparking tools for this operation.

Empty as much fuel from the hose as possible before removing. Hold the end of the hose high once removed until it can be placed in the recycle container for removal of the remainder of the fuel.

Wrap the ends of any adapters in teflon tape. In general you will need a 3/4" adapter to attach the pulser into the dispenser.

Pulser

Pulser Adapter

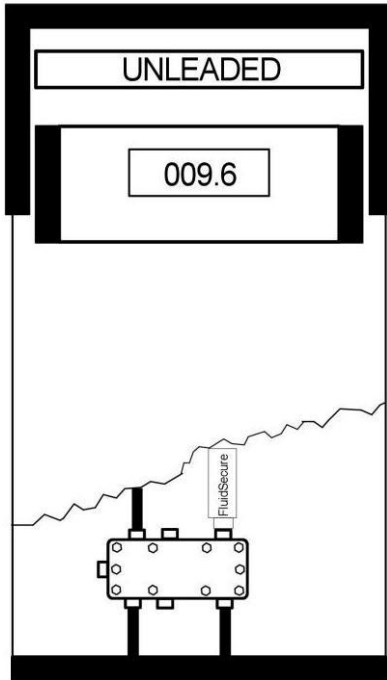


Screw the female pipe adapter onto the other end of the pulser.

Wrap a generous amount of teflon tape on the end of the hose and screw it into the opening of the female pipe adapter. Attach the pulser cable to the top of the FluidSecure unit.



## B. Installation - Standard Dispenser



Installation for standard dispensers is quite simple. Most have an explosion proof junction box located in the bottom section of the dispenser. This junction box generally will have two or more conduits that feed into it. Normally there are additional available conduit openings in that junction box. Simply unscrew the cap from one of the unused ports and screw in the

FluidSecure unit. If there are no available openings you will have to procure a rated Class 1, Division 1 T box to attach to the junction box and re-route an existing conduit to the box and then attach the FluidSecure unit. Do NOT use the included wiring enclosure as it is not rated for this type area.

The manual override switch can be removed from the wiring enclosure and inserted into an additional conduit opening in the junction box.

## **Wiring Connections**

Wiring connections are the same as the above ground tanks. However there are many different dispensers and each one will have differences from one manufacturer to another. It is not within the scope of this document to address all possible combinations. In general the FluidSecure unit should control a solenoid valve, dispenser authorization or a small pump motor. Under no condition should a FluidSecure unit control a large submersible pump motor.

## **Pulser Installation**

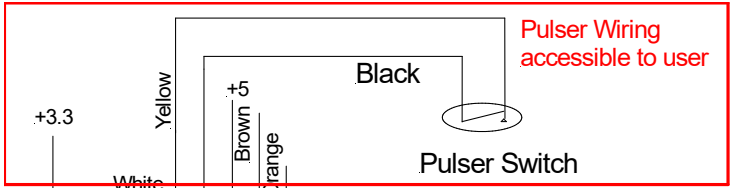
The included pulser can be utilized with standard dispensers and is attached in the same manner as the above ground tanks, however many dispensers have included pulsers which can be attached to the FluidSecure. To use an existing pulser you must utilize the cable and connector that is attached to the FluidSecure pulser. Simply cut the cable as close to the included FluidSecure pulser as needed to obtain the length cable required to reach from the FluidSecure unit to the dispenser pulser. The wiring from the FluidSecure unit is rated intrinsically safe and can be safely run without conduit in a Class 1, Division 1 location or any lesser classification. Do NOT allow it

to enter into a box or other device without a sealoff (included in the FluidSecure kit) to prevent the passage of explosive vapors from a rated area to a non rated area.

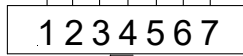
It is not within the scope of this document to cover all possible pulser combinations that exist on standard dispensers. However there are generally two common types that are often used.

1. Reed Switch or microswitch - This is a non powered switch that opens and closes for every tenth of a gallon. Some will count more often and others less but a 1/10 gallon pulse rate is extremely common in the commercial environment. Connect either wire from this type pulser to the red and green wire in the pulser cable.

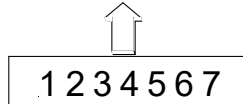
2. Open Collector - This is a powered pulser and generally requires 5 to 12 volts to operate. In general, you will have to determine which of the pulsers wires is ground and which are the pulse output. Additionally if the pulser requires external excitation, you may have to connect a 5 or 12 volt line to the pulser. The FluidSecure produces a 5 VDC output that can be used to power an open collector circuit. The following diagram shows which of the pulser lines in the FluidSecure pulser cable should be connected to where on the dispenser pulser. It is often necessary to obtain a wiring diagram of the dispenser pulser circuit to make these wiring determinations.



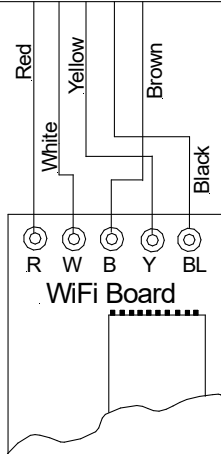
Note: All wires except white, yellow and black are capped off in pulser



SD20TA-ZM Jelen Connector Male



SD20TA-ZM Jelen Connector Female



- Red - +3.3
- White - Pulsar disconnect sense
- Yellow - Pulsar input
- Brown - +5
- Black - Ground

## C. Operating Instructions

Your physical installation should be complete. Power the dispenser on which in turn will power the FluidSecure. You will notice a faint blue light in the top half of the FluidSecure unit when power is applied. If there is no light, reconfirm that power is present. If no light is observed, recheck your electrical connections and try again. If no light is still not observed, refer to the troubleshooting section using the manual

### **Calibration:**

If you have installed the FluidSecure pulser, it must be calibrated. To calibrate the pulser you must have an authorized cell phone. Contact your FluidSecure administrator to obtain authorization. Once authorized, you will have to either pump fuel into a calibrated container or use the existing meter on your dispenser to calibrate. If you have just installed the included pulser (and you probably have) you must pump at least 20 to 30 gallons back into the tank to purge the air out of the pulser and hose. For calibration, It is best to pump at least 5 gallons for high accuracy but a smaller amount can be utilized. To begin the calibration, refer to your cell phone user guide for the FluidSecure app. Start a transaction and begin pumping into your calibrated container. If you are using your existing meter, then simply pump the fuel back into the tank or into a vehicle. Stop at a full gallon mark as close as you can. It doesn't matter how many gallons you pump but the more the better. (Please note that we refer to gallons but the label is unimportant. You can use quarts, liters or anything else.) When you are finished, the cell

phone will display a count. Call the administrator and report to them total gallons you pumped and the counts. That is all there is to it.

## D. Quick Start Guide

Once installation is complete you will need to enter some data into the cloud based server web page. Once the system is shipped, a company page will be setup automatically allowing you to start using the software.

The cloud based software must be filled out in proper sequence before any testing can be performed and transactions at the fuel locations can be started. Any users must be authorized and the FluidSecure Links must be initialized. These steps will guide you through the process. Please do them in order so you don't have to repeat steps.

### 1. Company Information Page

**Edit Company Information**

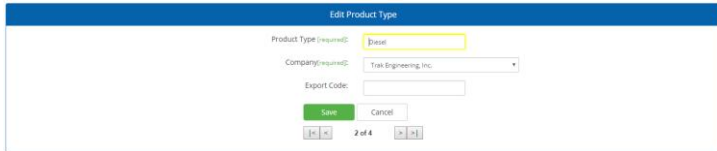
Company Name <small>(required)</small>	<input type="text" value="Trak Engineering, Inc."/>	Require Login	<input checked="" type="checkbox"/> (Login screen required on mobile application)
Contact Name <small>(required)</small>	<input type="text" value="Trak"/>	Require Department	<input checked="" type="checkbox"/> (Department screen required on mobile application)
Contact Address	<input type="text" value="2801 Crescent Dr.&lt;br/&gt;Tallahassee, FL"/>	Require Personnel PIN	<input checked="" type="checkbox"/> (Personnel Pin screen required on mobile application)
Export Code	<input type="text" value="1111"/>	Require Other	<input checked="" type="checkbox"/> (Other screen required on mobile application)
Contact Phone Number <small>(required)</small>	<input type="text" value="850-478-0265"/>	Contact Email <small>(required)</small>	<input type="text" value="trak@trakeng.com"/>

You can reset Contact Email password from Personnel screen.

1 of 1

Enter Company Name, Contact Name, Contact Address, Contact Phone Number and Contact Email. These can be modified or updated later if necessary. Press Save.

## 2. Select Product Type



Product Type (required): Base  
Company (required): Trak Engineering, Inc.  
Export Code:  
Save Cancel  
2 of 4

Enter in a Product Type (Unleaded, Diesel, etc.) and Company from the drop down list.

## 3. Edit Department Information



Department Number (required): 1  
Account Number:  
Address:  
Address 2:  
Name (required): Trak Employees  
Company (required): Trak Engineering, Inc.  
Export Code:  
Save Cancel  
1 of 2

Enter in Department Number (we suggest you start with 1) and Name. Again, these can be changed later if necessary.

## 4. Edit Fluid Secure Information

FluidSecure Unit Number (required):

FluidSecure Unit Current Name (SSID) (required):

FluidSecure New Name (will change on next fueling):

Tank Number (required):

Product in Tank (required):

Tank Monitor:

Tank Monitor Number:

Authorized Fueling Times (required):

Authorized Fueling Days (required):

Calibrate Tank:

Units measured (required): \*

Pulses (required):

Pulser Ratio:

Time Zone (required):

Select Location:

Disable Geo Location:

Latitude:

Longitude:

Address:

Pump On Time (required):

Pump Off Time (required):

MAC Address:

Export Code:

Company (required):

Original Name Of Fluid Secure Unit (required):

Is FluidSecure Unit Busy:

Selected time zone: **Eastern Time(UTC -4:00)**

\* : All calibration quantities must be whole units (gallons, liters, etc.) without tenths.

Enter in Fluid Secure Name - start with 1

Enter in Fluid Secure Current Name - enter in the serial number that is on the FluidSecure unit. The serial number is all alpha characters.

Enter in FluidSecure New Name - The name you would like for it to be identified by all users, for example FS-Unleaded

Enter in a Tank Number - start with 1

Enter in the product in the tank from the drop down menu

Select Authorized Fueling Times

Select Authorized Fueling Days

Check Disable Geo Location

Enter in a Pump On Time - usually 30

Enter in a Pump Off Time - usually 30

Select Company from dropdown menu

Enter Original Name of FluidSecure Unit - this is the serial number entered above

Enter Units Measured - enter 10

Enter Units Measured - enter 3750



Select Time Zone from dropdown menu

## 5. Edit Vehicle Information

The screenshot shows the 'Edit Vehicle Information' form with the following fields and values:

- Vehicle Number (required): 8321
- Vehicle Name (required): F-150
- Description: Work Van - Maintenance
- Department (required): Truck Maintenance
- Account ID: [empty]
- Make: Ford
- Model: F-150
- VIN: 79WH08MANG82
- Year: 2015
- License Plate Number: RBT963
- License State: [empty]
- Type of Vehicle: Van
- Last Fluid Date/Time: 7/26/2017 11:41:49 AM
- Current Odometer: 0
- Previous Odometer: 0
- Last Fueler: Eva Cheater
- Require Odometer Entry:  Hours:
- Check Odometer Responsibility:  Mileage  Kilometers
- Odometer Responsibility either:  Allow fueling after 3 entry  Don't allow fueling unless correct
- Total Miles allowed between Fueling: 600
- Fluid Limit Per Transaction: 0
- Fuel Limit Per Day: 0
- Expected MPG or Liters/100KM: [empty]
- Export Code: [empty]
- Comments: [empty]
- Company (required): Truck Engineering, Inc.

Enter Vehicle Number - Usually how your vehicles are identified

Enter Vehicle Name - Name of vehicle and what the transaction reports show

Enter Department - from the dropdown menu

Select Authorized FluidSecure units - the hoses this vehicle will be allowed to fuel at

Enter Company - the companies this vehicle will be allowed to fuel for

## 6. Enter Personnel information

No fields are required at this time. All users are required to download the FluidSecure apps to their phones and register on their own phone. Once registered you are required to go back to this page to:

**Edit Personnel Information**

Person Name (required):	<input type="text" value="John Thomas"/>	Pre-authorization Count Transaction:	<input type="text" value="0"/>
PIN (additional security):	<input type="text"/>	Fluid Limit Per Transaction:	<input type="text" value="0"/>
Email (username) (required):	<input type="text" value="j@trakeng.com"/>	Fluid Limit Per Day:	<input type="text" value="0"/>
Phone Number (required):	<input type="text" value="850-284-1456"/>	Vehicles Allowed to Fuel:	<input type="button" value="Click to add vehicle"/>
IMEI Number:	<input type="text" value="358175079248207"/>	Authorized Fueling Times:	<input type="button" value="Click to add Fueling Times"/>
Access Levels (required):	<input type="text" value="User"/>	Authorized Fueling Sites:	<input type="button" value="Click to add Sites"/>
Department (required):	<input type="text" value="Trak Employees"/>	Update FluidSecure Unit Software on next Fueling?	<input type="checkbox"/>
Send Transaction Email:	<input type="checkbox"/>	Active:	<input checked="" type="checkbox"/>
Export Code:	<input type="text"/>	Company (required):	<input type="text" value="Trak Engineering, Inc."/>

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Enter in their Access Level - usually user  
 Department - select from dropdown menu  
 Select Vehicles Allowed to Fuel - these are the vehicles this person is allowed to fuel  
 Select Authorized Fueling Times - these are the times t his person is allowed to fuel this vehicle  
 Select Authorized Fueling Sites - these are the sites this person is authorized to fuel at  
 Active? - click this if this person is allowed to fuel, un-click if de-authorize fueling permission.

