



Department of Environmental Protection

2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form: 62-761.900(9)

Form Title: Storage Tank Equipment

Registration Form

Effective Date: July 2019

Incorporated in Rule 62-761.850, F.A.C.

Storage Tank System Equipment Registration Form

Fill out completely

General Information

Company Name:

Contact Name:

Company Address:

City, State:

Zip:

E-mail:

Contact Number:

Product Name:

Model Number(s):

Product Type:

Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST),

F.A.C.: Write a brief description of equipment registration request including product limitations:

Information Checklist (Choose Yes, No, or N/A - Not Applicable):

Yes No N/A

1. Third-party Certification by a Nationally Recognized Testing Laboratory? (Required)
2. Documentation of third-party evaluation that the equipment meets DEP Rules?
3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?
4. Technical information and drawings included?
5. Installation instructions included?
6. Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)?
7. Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)?
8. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?
9. Has the product been approved or registered in other countries or states? (If so provide list)
10. Any requirements for company-certified installers or trainers?
11. Was this product(s) previously approved or registered by the Department? If yes, EQ-
12. Any changes or modifications to the equipment since the last submittal to DEP?

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Tanknotify@floridadep.gov, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399.

Write a brief description of equipment installation and performance in the U.S.:

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

Printed Name and Title

Signature (right click to sign)

Date

For Department Use Only:

Date Application Received:

Application complete:

Yes:

No:

EQ-

Date of complete or incomplete letter sent:

Date Equipment Requires Renewal:

Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-761.850(2), F.A.C.

EVO™ SERIES CONSOLE

Site Information

Site Name:	Site Phone:
Site Address:	

Pre-Installation

	YES	N/A	DATE COMPLETED
Completed site survey	☐	☐	
Completed FFS PRO® University Training	☐	☐	Certification #:
Arranged remote monitoring/update.	☐	☐	
Verified post order parts list	☐	☐	

Hardware & Wiring

Console Mounting

	YES	N/A	DATE COMPLETED
Proper console mounting clearance	☐	☐	
Proper console mounting height	☐	☐	

Non-Intrinsically Safe Wiring

	YES	N/A	DATE COMPLETED
System Power	☐	☐	
Grounds	☐	☐	
Relays	☐	☐	
ACInputs	☐	☐	
I/O Module	☐	☐	

Intrinsically Safe Wiring

	YES	N/A	DATE COMPLETED
Probes	☐	☐	
Sensors	☐	☐	
SCM Vacuum Sensors	☐	☐	
LSU500 Transducers	☐	☐	
MSH RS485 wiring	☐	☐	

Probe Installation

	YES	N/A	DATE COMPLETED
Proper suspension/bottom mount	☐	☐	
Proper splice connections	☐	☐	
Proper float installation	☐	☐	

Line Leak Hardware Installation

	YES	N/A	DATE COMPLETED
Pipe thread sealing compound used for connections	☐	☐	
Proper STP check valve	☐	☐	

SCM Hardware Installation	YES	N/A	DATE COMPLETED
Syphon Check Valve	☐	☐	
Tubing to containments	☐	☐	
SCCM modules installed	☐	☐	

Communication Wiring	YES	N/A	DATE COMPLETED
Proper ethernet connection	☐	☐	
Proper serial connection	☐	☐	
Proper DOM connection	☐	☐	
Proper TPI connections	☐	☐	
Verify misc. connections	☐	☐	

Configuration | Setup | Startup

System Configuration	YES	N/A	DATE COMPLETED
Set system time/time zone	☐	☐	
Verify IP and port settings	☐	☐	
Verify DNS server address	☐	☐	
Change/verify passwords	☐	☐	
Verify communication port settings	☐	☐	

Setup	YES	N/A	DATE COMPLETED
Check each section of the setup	☐	☐	
Verify notifications and logic conditions	☐	☐	
Verify One-Touch buttons	☐	☐	

Startup	YES	N/A	DATE COMPLETED
TPI controllers	☐	☐	
DIM query completed	☐	☐	
Lines learned	☐	☐	
Proper purging	☐	☐	
5-minute drill passed for all lines	☐	☐	
All lines learned <i>with no errors</i>	☐	☐	
Containments learned	☐	☐	
All containments learned <i>with no errors</i>	☐	☐	
Containment tightness test	☐	☐	

Testing

Sensors	YES	N/A	DATE COMPLETED
Each sensor tested for proper operation	☐	☐	
Brine level centered for HIS sensors	☐	☐	

FMS	YES	N/A	DATE COMPLETED
Probes read tank levels correctly	[]	[]	
Product and water offsets programmed	[]	[]	
Run short reconciliation period – confirm sales totals with POS sales information	[]	[]	

Line Leak Detection	YES	N/A	DATE COMPLETED
Lines <i>failed</i> gross test with installed leak generator	[]	[]	
STP shutdown upon gross line test failure	[]	[]	

SCM	YES	N/A	DATE COMPLETED
Containments hold vacuum at 6 Hg	[]	[]	
STP shutdown on containment	[]	[]	

Reviewed by (signature):

Installing Contractor Name:
L3 Installing Contractor Name:

READ THIS FIRST

THANK YOU FOR SELECTING AN EVO™ SERIES CONSOLE!

The purpose of this document is to prepare the installer/user of an EVO™ Series console with needed preliminary information for a successful install and use of the EVO™ Series console.

PRE-INSTALLATION CHECKLIST:

- ☐ Download and read the most recently released manuals before installing an EVO™ Series console. Please visit **franklinfueling.com** and navigate to Products > Fuel Management Systems > Automatic Tank Gauges > EVO™ 200 & EVO™ 400 > Downloads, to find the current information.
- ☐ FFS PRO® University certification is required to install, program, and start-up this product. Please visit **university.ffspro.com** to become certified.
- ☐ Acquire the necessary tools and materials as called out in the “Standard installation materials” section of the Installation Guide.
- ☐ Follow all operating precautions as outlined in all appropriate documentation.
- ☐ Follow all federal, state, and local laws governing the installation of this product and its associated systems. When no other regulations apply, follow NFPA codes 30, 30A, and 70 from the National Fire Protection Association.

SUPPORT AND QUESTIONS:

If you require additional technical support, contact the Technical Services Hotline:

Technical Support: +1 800 984 6266

franklinfueling.freshdesk.com/support/home

For other questions or concerns, please contact Franklin Electric Customer Service:

franklinfueling.com

3760 Marsh Rd. • Madison, WI 53718 • USA

Tel: USA & Canada +1 800 225 9787 • Fax: +1 608 838 6433

Tel: UK +44 (0) 1473 243300 • Tel: Mex 001 800 738 7610

Tel: DE +49 6571 105 380 • Tel: CH +86 10 8565 4566

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READ THIS FIRST

THANK YOU FOR SELECTING AN EVO™ LINE LEAK DETECTION SYSTEM!

The purpose of this document is to prepare the installer/user of an EVO™ Line Leak Detection System with needed preliminary information for a successful install and use of the EVO™ LLD System.

PRE-INSTALLATION CHECKLIST:

- ☐ Download and read the most recently released manuals before installing an EVO™ LLD System. Please visit **franklinfueling.com** (see QR-codes below).
- ☐ FFS PRO® University certification is required to install, program, and start-up this product. Please visit **university.ffspro.com** to become certified (see QR-codes below).
- ☐ Acquire the necessary tools and materials as called out in the “Pre-Installation Overview” section of the Install Guide.
- ☐ Follow all operating precautions as outlined in all appropriate documentation.
- ☐ Follow all federal, state, and local laws governing the installation of this product and its associated systems. When no other regulations apply, follow NFPA codes 30, 30A, and 70 from the National Fire Protection Association.

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LS500

EVO™ LLD



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THANK YOU FOR SELECTING AN EVO™ ONE SYSTEM!

The purpose of this document is to prepare the installer/user of an EVO™ ONE System with needed preliminary information for a successful install and use of the EVO™ ONE System.

PRE-INSTALLATION CHECKLIST:

- ☐ Download and read the most recently released manuals before installing an EVO™ ONE System. Please visit **franklinfueling.com** (see QR-codes below).
- ☐ FFS PRO® University certification is required to install, program, and start-up this product. Please visit **university.ffspro.com** to become certified (see QR-codes below).
- ☐ Acquire the necessary tools and materials as called out in the “Pre-Installation Overview” section of the Install Guide.
- ☐ Follow all operating precautions as outlined in all appropriate documentation.
- ☐ Follow all federal, state, and local laws governing the installation of this product and its associated systems. When no other regulations apply, follow NFPA codes 30, 30A, and 70 from the National Fire Protection Association.

SUPPORT AND QUESTIONS:

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LS500-U



EVO™ ONE



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Franklin Electric
FUELING SYSTEMS

EVO™ ONE **EVO™ LLD** **EVO™ 200 / 400**

INSTALL / GUIDE

10000023230 r1

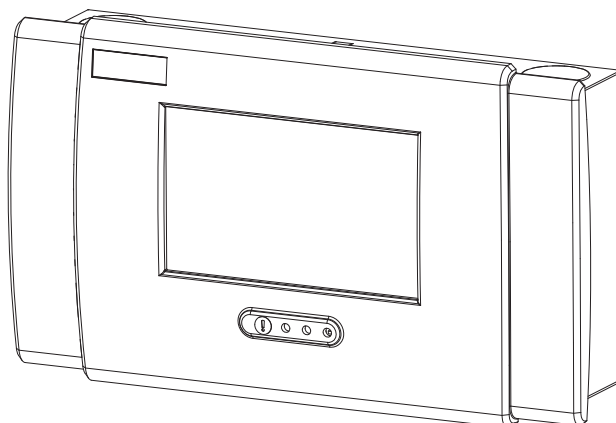
MODEL

EVO1-X#-S1#-C#-G#D#

EVO-LLDS/#

EVO200

EVO400



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For technical support, please contact:

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Red Jacket is a registered trademark of Veeder-Root Company

10000023230 r1

CONVENTIONS USED IN THIS DOCUMENT

This document includes safety precautions and other important information presented in the following format:

NOTE: This provides helpful supplementary information.

IMPORTANT: This provides important supplementary information and instructions to avoid damaging hardware or a potential hazard.

▲ CAUTION: This indicates a potentially hazardous situation that could result in minor or moderate injury if not avoided. This may also be used to alert against unsafe practices.

▲ WARNING: This indicates a potentially hazardous situation that could result in severe injury or death if not avoided.

▲ DANGER: This indicates an imminently hazardous situation that will result in death if not avoided.

OPERATING PRECAUTIONS

Franklin Electric equipment is designed to be installed in areas where volatile liquids such as gasoline and diesel fuel are present. Working in such a hazardous environment presents a risk of severe injury or death if you do not follow standard industry practices and the instructions in this document. Before working with or installing the equipment covered in this document, or any related equipment, read this entire document, particularly the following precautions:

IMPORTANT: To help prevent spillage from an underground storage tank, make sure the delivery equipment is well-maintained, that there is a proper connection, and that the fill adaptor is tight. Delivery personnel should inspect delivery elbows and hoses for damage and missing parts.

▲ CAUTION: Use only original Franklin Electric parts. Substituting non-Franklin Electric parts could cause the device to fail, which could create a hazardous condition and/or harm the environment.

▲ WARNING: Follow all codes that govern the installation and service of this product and the entire system. Always lock out and tag electrical circuit breakers while installing or servicing this equipment and related equipment. A potentially lethal electrical shock hazard and the possibility of an explosion or fire from a spark can result if the electrical circuit breakers are accidentally turned on while installing or servicing this product. Refer to this document (and documentation for related equipment) for complete installation and safety information.

▲ WARNING: Before entering a containment sump, check for the presence of hydrocarbon vapors. Inhaling these vapors may cause dizziness/ unconsciousness, and if ignited, can explode causing serious injury or death. Containment sumps are designed to trap hazardous liquid spills and prevent environmental contamination, so they can accumulate dangerous amounts of hydrocarbon vapors. Check the atmosphere in the sump regularly while work is in process. If vapors reach unsafe levels, exit the sump and ventilate it with fresh air before resuming work. Always have another person standing by for assistance.

▲ WARNING: Follow all federal, state, and local laws governing the installation of this product and its associated systems. When no other regulations apply, follow NFPA codes 30, 30A, and 70 from the National Fire Protection Association. Failure to follow these codes could result in severe injury, death, serious property damage, and/or environmental contamination.

▲ WARNING: Always secure the work area from moving vehicles. The equipment in this document is usually mounted underground, so reduced visibility puts service personnel working on it in danger from moving vehicles that enter the work area. To help prevent this safety hazard, secure the area by using a service truck or other vehicle to block access to the work area.

▲ DANGER: Inspect the installation location for potential ignition sources such as flames, sparks, radio waves, ionizing radiation, and ultrasound sonic waves. If any potential ignition sources are identified, implement proper safety measures.

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1 Introduction

1.1 EVO™ ONE

The EVO™ ONE is a turnkey fuel monitoring solution that performs electronic line leak detection, inventory management, and containment monitoring. The system features Turbine Pump Interface™, static tank testing, 24-hour Statistical Continuous Automatic Leak Detection (SCALD®), tank autocalibration, and inventory reconciliation.

This guide provides instructions on how to install the EVO™ ONE console. For instructions on installing the FMP-LS500-U system, reference p/n **10000022484**, Electronic Line Leak Detection Featuring AUTO-LEARN® for EVO™ ONE.

1.2 EVO™ LLD

The EVO™ LLD is a stand-alone precision electronic line leak detection solution designed to provide early detection of leaks in fuel lines. The system features automatic submersible pump shutdown in the event of a leak, minimizing the risks of costly spills and environmental cleanup. This pressure-based system utilizes line characteristics learned through AUTO-LEARN® to monitor for changes to declare the line as tight or if a leak is present.

This guide provides instructions on how to install the EVO™ LLD console. For instructions on installing the FMP-LS500 system, reference p/n **10000021157**, Electronic Line Leak Detection Featuring AUTO-LEARN® For EVO™ 600/6000/LLD.

1.3 EVO™ 200 / 400

The EVO™ 200/400 is an inventory management and containment monitoring system. The system features Turbine Pump Interface™, static tank testing, and compliance monitoring. Optional features include 24-hour Statistical Continuous Automatic Leak Detection (SCALD®), tank autocalibration, inventory reconciliation, and flow rate monitoring.

1.4 Regulatory Compliance

IMPORTANT INFORMATION - FOLLOW ALL INSTRUCTIONS

- The products contained within in this guide shall only be assembled and installed by a qualified person (see §2.7). *Use of non-qualified personnel, or any deviations from these recommended procedures, could result in damage or malfunction.*
- For Operating Parameters, see §3.3.2.
- For Certifications & Approvals, see §7.2.
- For Agency Control Drawings, see §7.3.

1.5 Documentation

- This document is intended for qualified and certified installation persons.
- Instructions of this document are in English. All other language versions are translations of this original document.
- Illustrations in this document show a typical setup and are for instruction and description purposes only.
- Information given in this document is given as a guide only. It is the installer's responsibility to ensure that correct and safe procedures are followed at all times.
- This document and related documents are available from Franklin Electric at www.franklinfueling.com.

1.5.1 Symbol Legend



Wear Protective Headwear



Wear Eye Protection



Wear Protective Clothing



Wear High-Visibility Clothing



Wear Protective Gloves



Wear Safety Footwear



Refer to instruction guide



Ventilate Before & During Entering



Ensure Continuous Ventilation



Connect an earth terminal to the ground



Lockout/Tagout Electrical Equipment



Disconnect main plug from electrical outlet



Disconnect before carrying out maintenance or repair



General Warning



Warning: Electricity



Warning: Industrial vehicles



Warning: Flammable Material



No open flame; Fire, open ignition source and smoking prohibited

2 Safety/Security

2.1 General Safety Information

- Procedures in this document are only to be performed by people qualified and certified to perform them (see §2.3 and §2.7).
- Personnel working on or with energized equipment must be authorized by relevant regulatory bodies to carry out such work and must have the appropriate training. Check with your employer and relevant regulatory body's rules for working with energized equipment.
- Obey all local laws, rules, regulations, and instructions in this document. In case of inconsistency or contradiction between information contained in this document and any laws, rules and regulations, obey the stricter of the two.
- Keep unqualified personnel at a safe distance during installation.
- If it is necessary to remove safety/security devices, immediately reinstall the safety/security devices after completing the work.

2.2 Documentation Availability

Upon installation completion, this document shall be transferred by the qualified person or manufacturer to the owner, operator, or other responsible person of the facility where the installation is done.

- Save this guide for future use, and make sure to provide it to anyone who services this equipment (see §2.3).
- Always reference the guide(s) that came with the equipment for a complete list of installation and safety precautions. The most current Franklin Electric documentation can be found online at www.franklinfueling.com.

2.3 Installation & Service Access

Certified Installer, Service, or Programmer*

Only Franklin Electric certified installers, service (technician) and programmers are allowed to access both the console interface and areas internal to the console. See §2.7 for information on certification training.

Site Owner or Operator*

The site owner or operator of the console is only allowed to access the user interface. Access to areas internal to the console is prohibited.

**If your console is serviced by someone who is not a Franklin Electric certified installer, service (technician), or programmer, your warranty will be void.*

2.4 Hazard Assessment

Prior to beginning work and prior to recommencing work after leaving and returning to the worksite, a *worksite pre-job hazard assessment must be performed to identify safety and environmental needs*. At a minimum, this hazard assessment should:

- Identify possible hazards and risks.
- Identify the safety needs of the job.
- Identify the correct procedures, practices and equipment.
- Eliminate unsafe conditions and actions from the worksite.
- Identify the need for personal protective equipment.
- Inspect equipment before use.
- Confirm sheaths of all cables are secured and undamaged.
- Confirm plugs and connectors are properly connected and serviceable.
- Perform ongoing risk assessment during the project.

2.5 Required Personal Protective Equipment (PPEs)

These PPEs are required during all phases of installation.



Wear Protective Clothing



Wear Eye Protection



Wear High-Visibility Clothing



Wear Protective Gloves



Wear Protective Headwear



Wear Safety Footwear

2.6 Cyber Security

This product is designed to be connected to and to communicate information and data via a network interface. It is solely the owner's responsibility to provide and continuously ensure a secure connection between the product and the Owner's network or any other network (as the case may be).

The Owner shall establish and maintain appropriate measures (such as but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of anti-virus programs, etc.) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. ***The Owner shall also ensure that the device and/or any connecting devices have the latest firmware version available to ensure device security features are up to date.***

The manufacturer, Franklin Electric, and its affiliates are not liable for damages and/or losses related to such security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information.

2.7 Qualifications and Responsibilities

Completion of this course is required *before certification test access will be granted for any other course (online or live)*:

- Fuel System Installation Safety

2.7.1 Qualifications for Installation Certification

To be considered “qualified” to install this product, individuals shall pass training from the following certification training courses (online or live):

Controller Specialist

- EVO™ 200/400 Installation & Wiring
AND
- LS500 Electronic Line Leak Detection*

NOTE: *Only required if installing / programming the FMP-LS500 or FMP-LS500-U system.

FE Online or Live
Certification
Training



SCAN / CLICK

2.7.2 Qualifications for Programming Certification

To be considered “qualified” to program this product, individuals shall pass training from the following certification training courses (online or live):

Site Startup Specialist

- EVO™ 600/6000 Programming
OR
- EVO™ 200/400 Programming
AND
- LS500 Electronic Line Leak Detection*

NOTE: *Only required if installing / programming the FMP-LS500 or FMP-LS500-U system.

2.7.3 Qualifications for Product Compliance Testing

To be considered "qualified" to test this product for compliance, individuals shall pass training from the following certification training course (online or live):

Additional Training

- Compliance Testing

2.7.4 Responsibilities

The following responsibilities are for guidance only and are not limited to those listed here. It is the responsibility of:

- The owner of the install site(s) to ensure that all EVO™ installers shall be certified (see § 2.7.1), follow all local laws, rules and regulations, along with the instructions and the specifications listed in this document.
- The certified user(s) to know the EVO™ and its safe use.
- The certified user(s) to have and maintain a valid Franklin Electric training certification (see § 2.7.1).

3 Pre-Installation Overview

3.1 Upon Receipt of Item(s)

- Verify all items are in accordance with the order.
- Check all items for damage.
- If any item shows damage or is not in accordance with the order, inform Franklin Electric *immediately*.
- Remove the packaging material.
 - Follow all local laws, rules and regulations regarding disposal of discarded parts, packaging material or items and any subsequent components.

3.2 Materials Included

3.2.1 EVO™ ONE

Qty	Item / Description	Part Number
1	EVO™ ONE Console (includes):	
1	Spare Fuse Pack (contains two fuses) with Terminal Blocks	—
1	FMP-LS500-U/# (includes):	
1	3.0 gph (11.4 lph) Leak Generator Kit	TS-ALCAL
#	Needle Valve Kit(s)	TS-ALNIP
#	Transducer(s) – Intrinsically safe UDP pressure transducer	FMP-LSU500-U
#	Splice Connector Kit	—
1	FMP-ULS/## (includes):	
##	Universal Liquid Sump Sensor	FMP-ULS
1	Probe Kit (includes):	
2 or 3	Digital Leak Detection Probe (ordered separately)	FMP-LL3-###
2 or 3	Probe Install Kit(s) – Bottom mount probe install kit for 4" risers	TSP-C4A
2	Standard Float Kit(s) – 4" float set for gasoline tanks	TSP-IGF4
0 or 1	Standard Float Kit(s) – 4" float set for diesel tanks	TSP-IDF4

3.2.2 EVO™ LLD

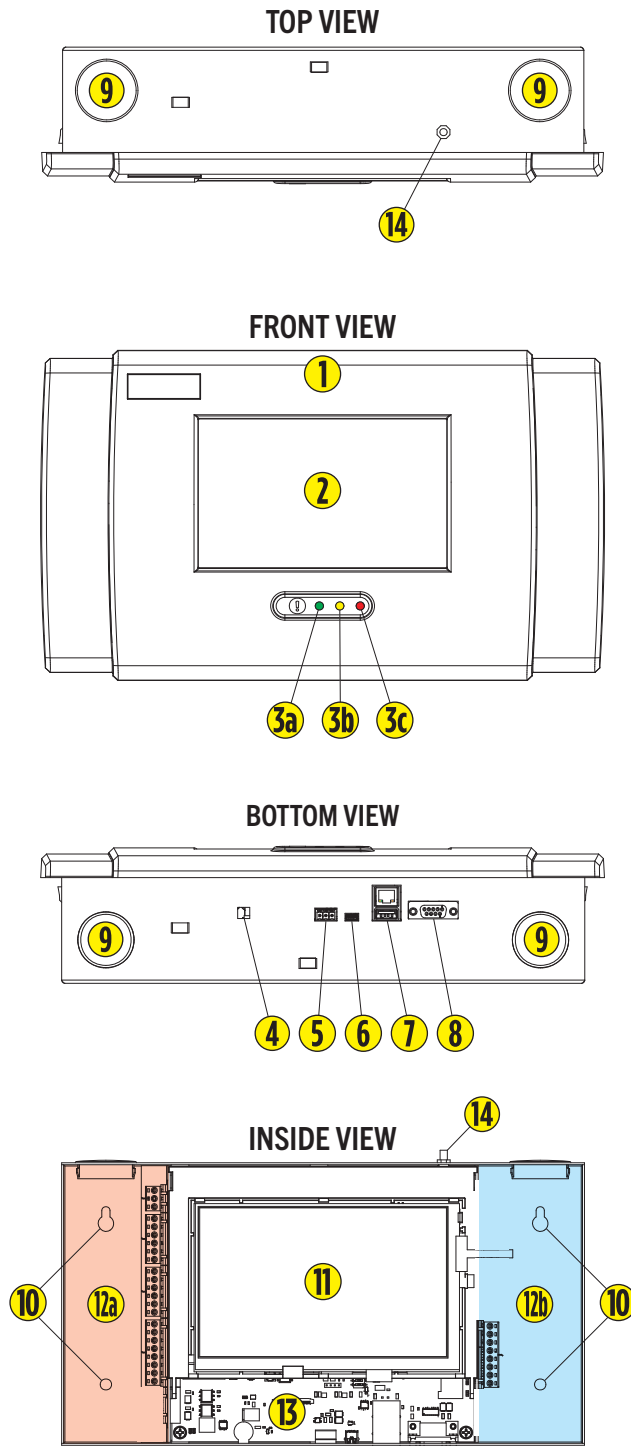
Qty	Item/Description	Part Number
1	EVO™ LLD Console (includes):	
1	Spare Fuse Pack (contains two fuses) with Terminal Blocks	—
1	FMP-LS500/# (includes):	
1	3.0 gph (11.4 lph) Leak Generator Kit	TS-ALCAL
#	Needle Valve Kit(s)	TS-ALNIP
#	Transducer(s) – Intrinsically safe 4–20 mA pressure transducer	FMP-LSU500
#	Splice Connector Kit	—

3.2.3 EVO™ 200 / 400

Qty	Item/Description	Part Number
1	EVO™ 200/400 Console (includes):	
1	Spare Fuse Pack (contains two fuses) with Terminal Blocks	—
0 or 1	Wi-Fi Antenna	—

3.3 Technical Overview

3.3.1 Identifying Components

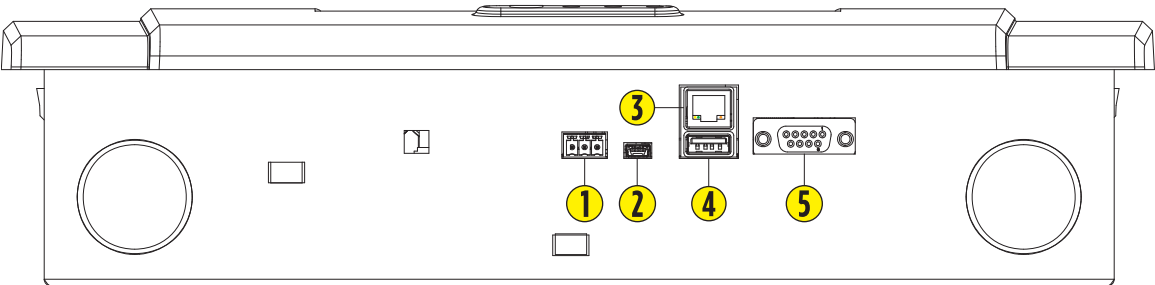


1. Cover
2. LCD Touchscreen
3. LED Indicators
 - a. Power Supply (green)
 - b. Warning (yellow)
 - c. Alarm (red)
4. Annunciator (audible alarm)
5. RS-485 / TPI
6. Mini B USB Port
7. Ethernet / USB Port
8. RS-232
9. Conduit Knockouts (top (2) & bottom (2))
10. Mounting Holes (4)
11. Flip Up Panel (touchscreen)
12. Termination Blocks
 - a. Non-Intrinsically Safe (Non-IS) Compartment
 - b. Intrinsically Safe (IS) Compartment
13. Main Board
14. Wi-Fi Antenna Connection Ferrule

3.3.1.1 Communication Ports

⚠ CAUTION: Equipment connected to the console’s communication port must be listed by UL (or another third-party, nationally recognized test laboratory) when required by the authority having jurisdiction, and cannot be installed in a hazardous location (unless so rated).

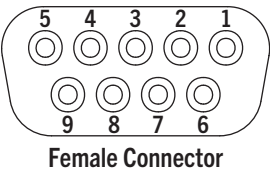
EVO™ consoles have several communication ports which can be used to communicate with various devices for a variety of applications. Some of these applications include connecting the EVO™ console to a computer network, printing reports on an external printer, and setting up Turbine Pump Interface™ (TPI). Refer to the following table for a more detailed listing of the ports and their associated devices.



#	Port	Connector Type	Equipment
1	RS-485	5 Pin Pluggable Terminal Block, 0.2" (5.08 mm) LS	Turbine Pump Interface™ (TPI)
2	Mini B USB	Mini B USB	Laptop PC
3	Ethernet	RJ45	Network
4	USB	USB-A	Printer, memory stick
5	RS-232 Comm 1	DB9 Female DCE	Local PC with a null-modem cable

RS-232 Communication Connector

The pin names of the RS-232 connector are shown here:

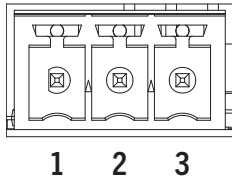


Pin Number*	Function	Input/Output
2	TD	O →
3	RD	I ←
5	GND	

NOTE: *Pins 1, 4 and 6–9 are not connected.

RS-485 Communication Connector – Turbine Pump Interface™ (TPI)

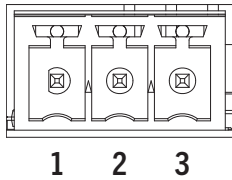
The pin names of the RS-485 connector when used for TPI communication are shown here:

	PIN Number	Function
	1	+
	2	–
	3	GND

NOTE: For TPI communication, + is associated with A, and – is associated with B.

RS-485 Communication Connector – Third-Party Systems (RS-485 Standard)

The pin names of the RS-485 connector when used for communication with third-party systems using the RS-485 standard are shown here:

	PIN Number	Function
	1	B
	2	A
	3	GND

NOTE: For third-party system communication following the RS-485 standard, + is associated with B and – associated with A.

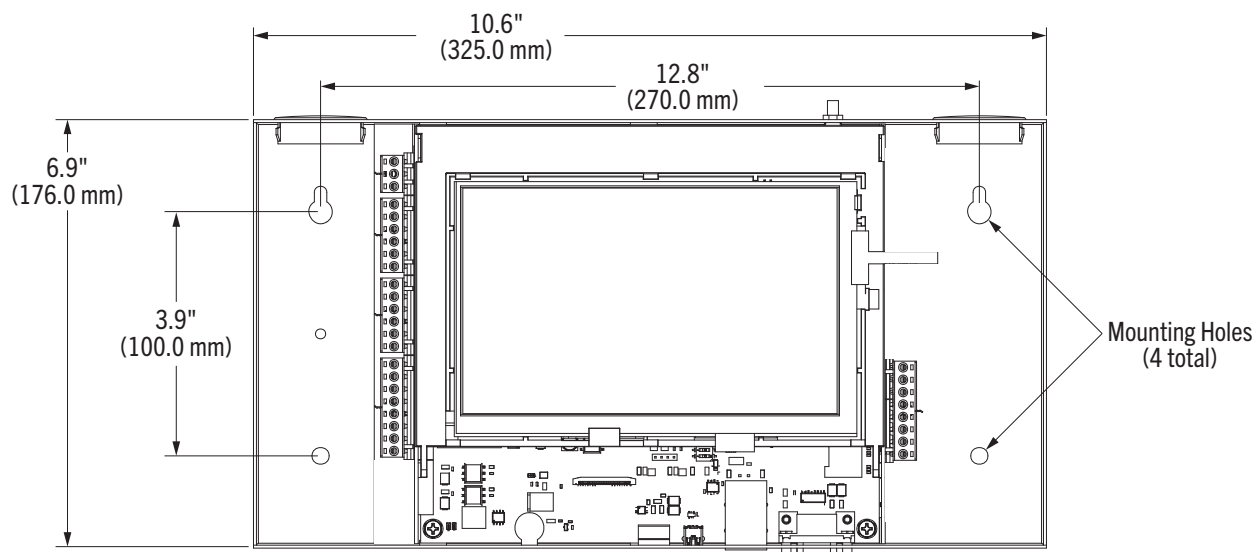
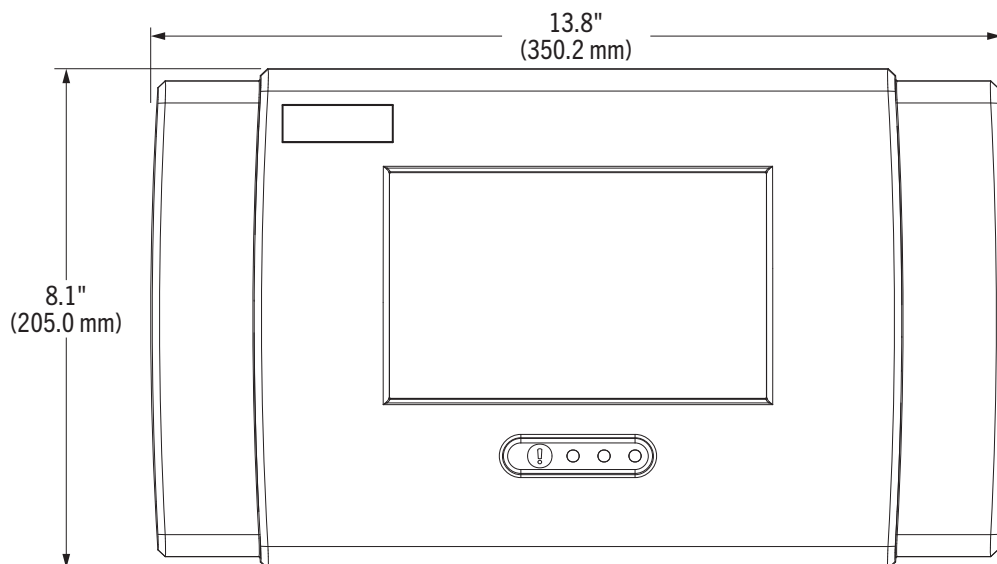
3.3.2 Specifications

NOTE: See § 7.2 for Certifications & Approvals.

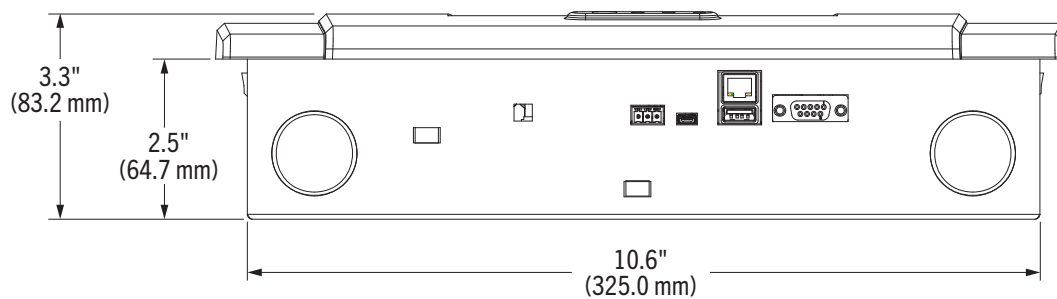
Feature	Description
Input Power Requirements	110 to 240 VAC, 50/60 Hz, 2.6 amps
Dimensions	See § 3.3.3
Weight	5.5 lbs (2.5 kg) to 6.0 lbs (2.7 kg)
Operating Temperature	-4 to 104°F (-20 to 40°C)
Operating Humidity	0 to 95%, non-condensing
Operating Pressure	0 to 100 psi (0 to 6.89 bar)
Splash Resistance	Not to be exposed to direct spray, splash, or drips
Location	Indoors in a non-hazardous, pollution degree 2 environment per IEC60664

3.3.3 Dimensions

Front View



Bottom View



3.3.4 Site Requirements

Before starting installation, confirm the following:

- Any FE PETRO® submersible pumps that are in the system are using a standard check valve, p/n **400988931** or **400988934**.
- Any Red Jacket® submersible pumps that are in the system and are using an adjustable functional element have a pump OFF pressure that is *at least 5 psi (0.34 bar) below the pump ON pressure*.

NOTE: Select Red Jacket® submersible pumps do not have an optional adjustable functional element. These submersible pumps have a check valve that meets the LS500 system pressure requirements.

- An electrical power panel with a dedicated 20 A circuit breaker is available to power the console. Power to the console must be 110–240 VAC, 50/60 Hz.
- All tanks are setup to prevent tank overflow situations.

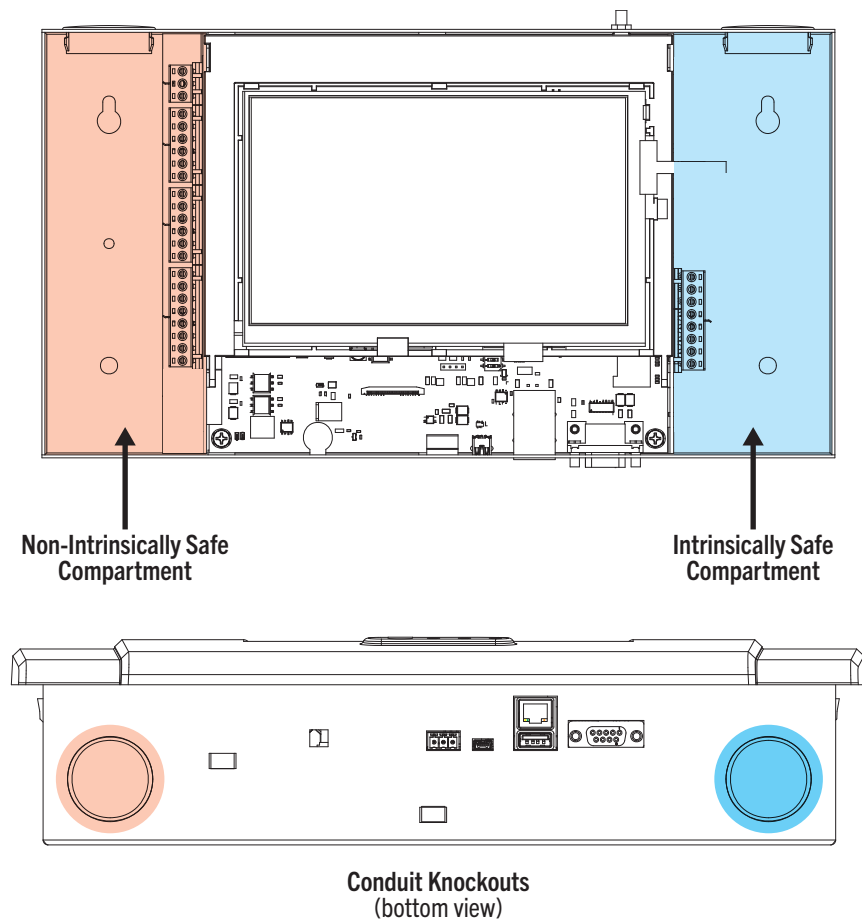
NOTE: When using high pressure pumps that can generate more than 40 psi (2.76 bar) and are manifolded between separate tanks, the pressure of one running pump may open the relief valve of another other idle pump and cause product from the running tank to fill into an idle tank. Overflow prevention measures must be put in place to prevent this setup from causing an overflow situation.

3.3.4.1 Conduit, Junction Box, & Field Wiring Requirements

IMPORTANT: Field wiring connected to the device wiring must be approved for use by Franklin Electric.

- Approved field wiring for devices can be found in the install guides of each device.
- Provided 3M Scotchlok™ 314 splice connectors or other connectors approved by UL for wire size and location must be used to connect the field wiring to the device wiring within the junction box.
- Weatherproof junction boxes, along with gaskets, covers, and required reducing bushings, must be used to connect the intrinsically safe device wiring to the field wiring.
- CableTight™ or other code-approved conduit must be used to connect the junction box to the ¾" or 1" conduit knockouts on the ATG console for intrinsically safe installations.*
- EYS seal fittings must be installed in conduit between the junction box and the EVO™ console.

NOTE: *See next page for a reference illustration.



3.3.5 Required Tools & Consumables

- (4) – #10 or M5 fasteners capable of supporting the EVO™ (up to 6.0 lbs (2.7 kg)) on the chosen mounting surface material.
- Screwdriver – Flathead
- Pliers – Slip-Joint
- Pipe Wrench
- Wrenches – Assorted sizes

4

Installation



⚠ WARNING:

- Ensure power to the electrical circuit breakers is *turned off, tagged, and locked-out at the power panel before performing any installation or service work to this and any related equipment.*
- Follow all necessary safety steps as required by federal, state and local regulations in relation to working with electrical equipment.

⚠ CAUTION:

- Install field wiring, junction boxes, CableTight™ (or other code-approved conduit), and EYS seal fittings per the National Electrical Code (NEC) and all other codes governing the installation of these products.
- Ensure all conduits, conduit fittings, junction box fittings and hole plug threads are *sealed with pipe thread sealant (UL-classified petro-resistant) and produce a weather proof seal.*

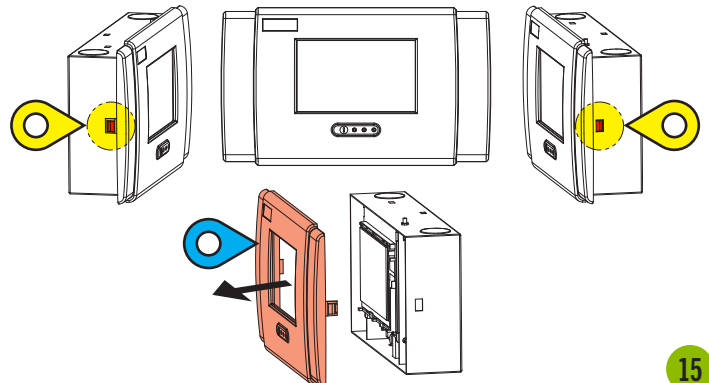
IMPORTANT: Always use safe electrostatic discharge practices when connecting/removing power and any work associated with making electrical connections to the console and related connected components.

NOTE: When the installation is complete, make sure this guide is left with the service station owner or operator.

4.1

Console Install

1. Perform a facility/worksite approved Lockout/Tagout procedure for the circuit breakers to be connected to the EVO™ console and related systems (de-energize).
2. Locate a suitable mounting location for the EVO™ console that satisfies each of these requirements:
 - Indoors, non-hazardous location.
 - Within easy operator reach, at eye-level.
 - 2" (50 mm) *minimum* of unobstructed area *on all sides of the enclosure.**
 - *6" (150 mm) of unobstructed area on top of the unit if using the Wi-Fi antenna.
3. Press both cover release tabs (📍) and lift the cover off straight to access the mounting holes (📍).



4. Use the appropriate tools to fasten the mounting brackets to the EVO™ console with the chosen fasteners. *Be sure to have help to securely lift and position the console until fasteners are completely installed.*
5. Drill four mounting holes suitable for the attaching hardware to be used in securing the EVO™ console to the mounting surface.
6. Fasten the EVO™ console to the mounting surface.

4.2 Wiring Instructions

▲ CAUTION: Do not run *intrinsically safe* wiring and *non-intrinsically safe* wiring in the same conduit.

IMPORTANT: Review §4 precautions.

NOTE: Always start at the first available channel, *do not skip channels*.

- For example, if channels one through three are already being used for another application, *channel four must be used*.
- Be sure to connect the wires to the appropriate polarity (+/–). *If the device is wired inversely, it may not function properly and may result in damage to the circuit.*

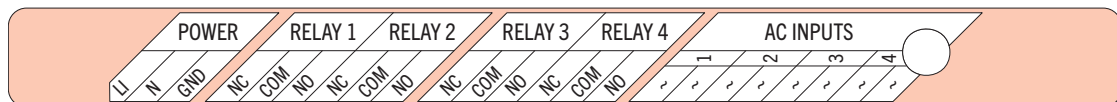
4.2.1 Non-Intrinsically Safe

4.2.1.1 Terminal Label Overview

EVO™ ONE



EVO™ LLD



EVO™ 200/400



4.2.1.2 Console Power Supply – EVO™ ONE, EVO™ LLD, & EVO™ 200 / 400

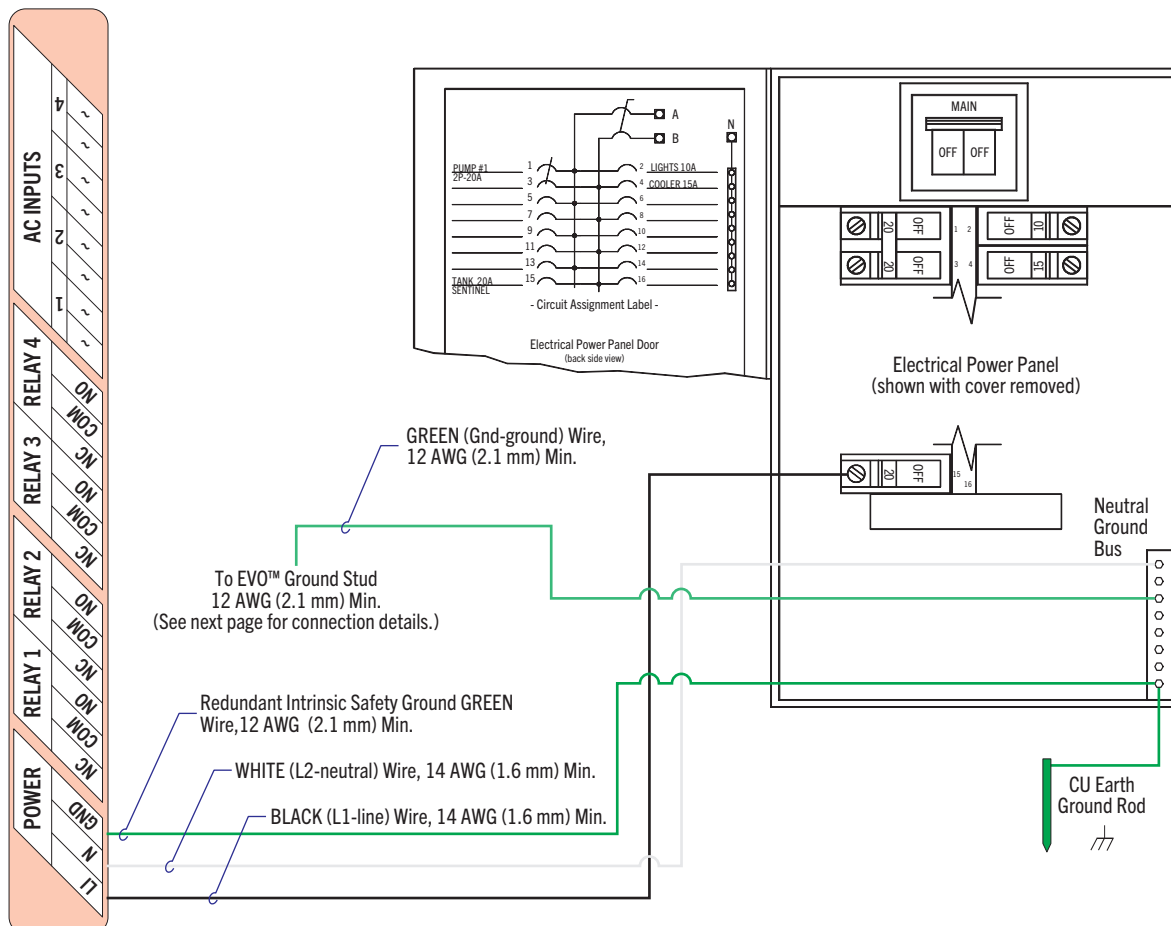
⚠ WARNING: The ground bus in the electrical panel must be connected to an earth ground as required by the National Electrical Code. *If the ground bus is not properly connected to an earth ground, or if the intrinsically safe safety ground is not properly connected at the console, a dangerous condition will be created that may result in an explosion.*

IMPORTANT: Do not connect other equipment to the EVO™ dedicated circuit. *If other equipment is connected to this circuit, the resulting electrical noise may cause faulty system operation.*

- At the electrical power panel, locate or install a 20 amp circuit breaker.
 - This breaker should be dedicated to only supplying power to the EVO™ console.
 - Mark this circuit **EVO™ console [power] - ONLY** on the circuit label at the back of the electrical power panel door.
- Wire the power connections per diagram below.

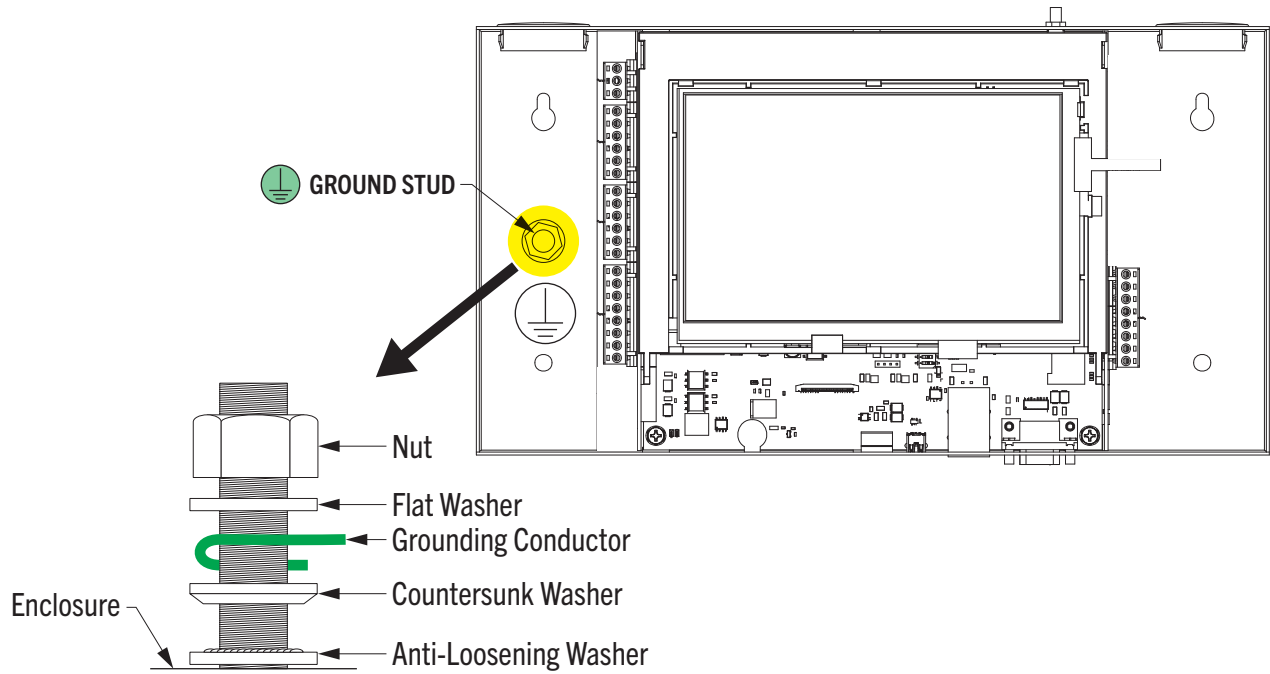
110/240 VAC Line Connection

Electrical Panel	No of Conductors, Color, Gauge (mm)	Circuits
20 A Circuit Breaker	1 BLACK Wire, 14 AWG (1.5 mm ²) min.	110/240 VAC Power Supply
Neutral Wire	1 WHITE Wire, 14 AWG (1.5 mm ²) min.	Neutral
Grounding Bus Bar	1 GREEN Wire, 12 AWG (1.6 mm ²) min.	Ground
Grounding Bus Bar	1 GREEN Wire, 12 AWG (2.5 mm ²) min.	Safety Ground



Ground Stud Connection Detail

- Attach the ground wire to the grounding stud in the left compartment of the console.



3. Check electrical resistance to earth ground. *Check the resistance between the ground stud of the EVO™ and the ground bus on the electrical power panel. **This resistance must be less than 1 ohm.***

4.2.1.3 Relays – EVO™ ONE, EVO™ LLD, & EVO™ 200 / 400

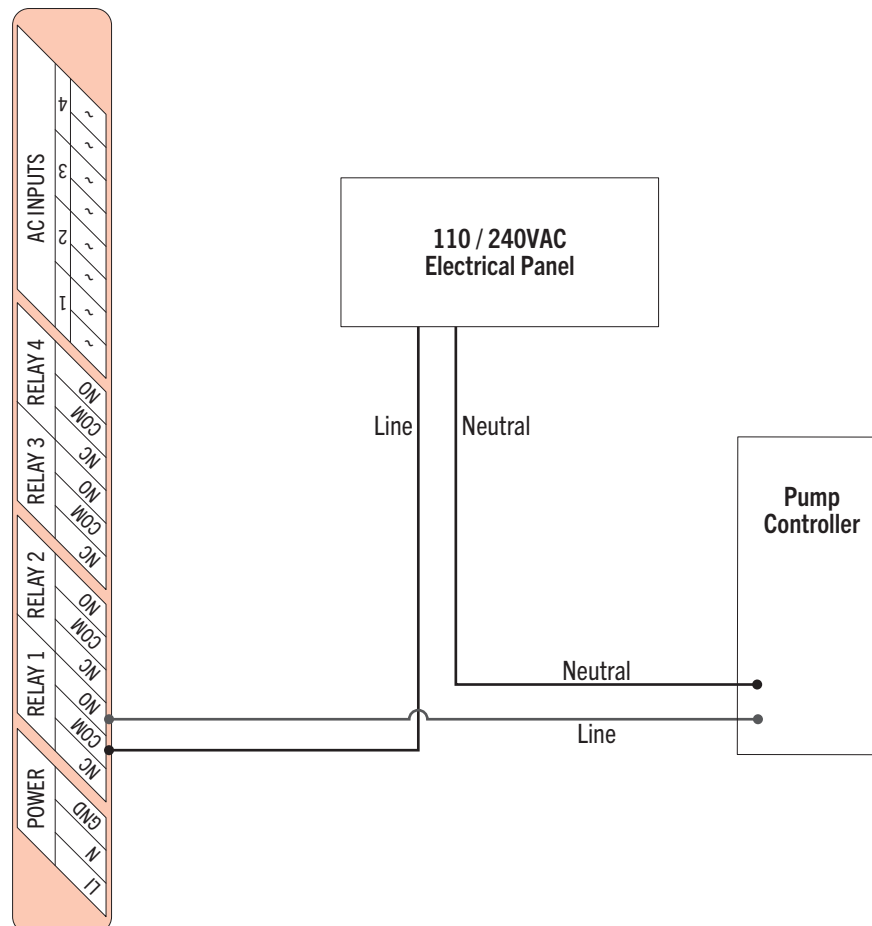
Each Form C relay has a fuse and may be configured as *normally open* or *normally closed* with the power off by wiring to the appropriate terminals.

EVO™ Console	Relay Outputs – Non-Intrinsically Safe (Identical Form-C Channels)	Devices Monitored
ONE	4	Pump controller or other generic relay output applications
LLD		
200	2	
400		

NOTE: Shown below is the wiring for a *normally open* setup.

1. Wire the relay outputs per the following wiring diagram.

Feature	Designation
Contact Rating	2 A @ 250 VAC 2 A @ 30 VDC

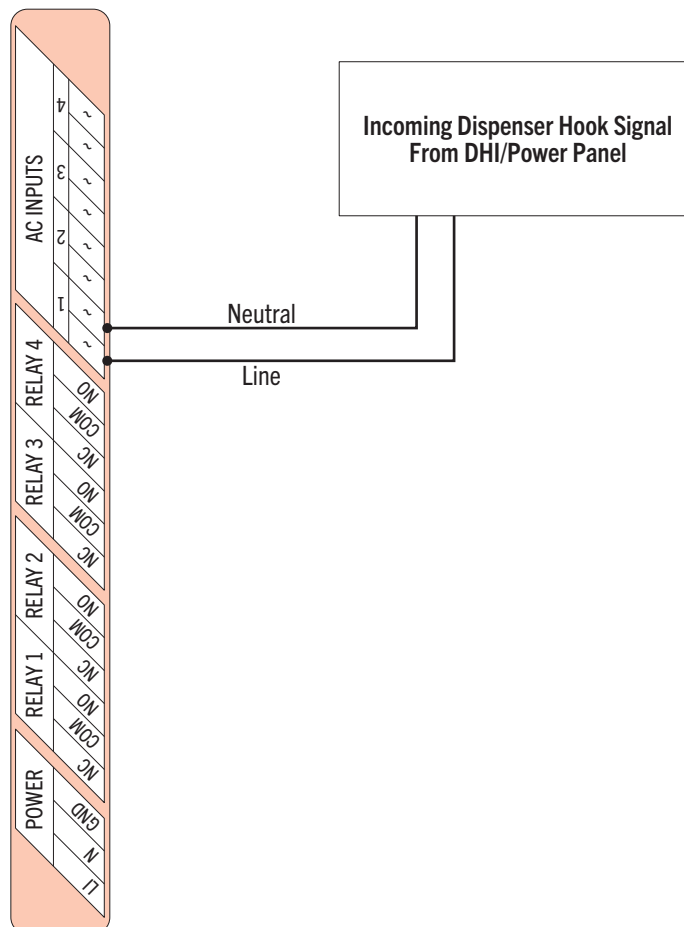


4.2.1.4 AC Inputs – EVO™ ONE & EVO™ LLD

EVO™ Console	AC Inputs – Non-Intrinsically Safe (Optically Isolated)	Devices Monitored
ONE	4	Dispenser hook isolation or other generic AC input applications
LLD		

1. Wire the AC inputs per the following wiring diagram.

Feature	Designation
Input Voltage Rating	110 to 240 VAC
Input Current	35 mA @ 240 VAC



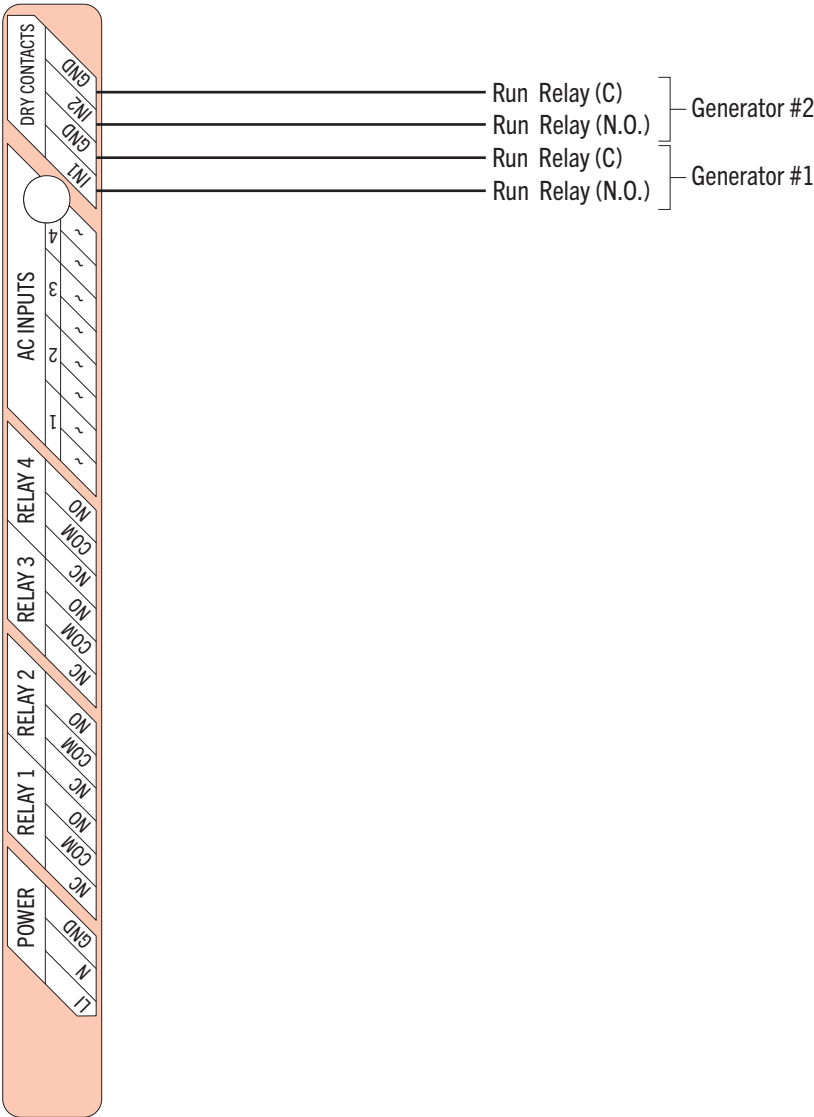
4.2.1.5 Dry Contact Inputs – EVO™ ONE & EVO™ 200/400

The EVO™ ONE and EVO™ 200/400 have two dry contact inputs that can be used for generator applications or other generic dry contact inputs applications. External relays should have contacts suitable for low current.

EVO™ Console	Dry Contact Inputs	Devices Monitored
ONE	2	Generator applications or other generic dry contact input applications
200		
400		

1. Wire the dry contact inputs per the following wiring diagram.

Feature	Designation
Internally Wetted	5 VDC, 15 mA DC



4.2.2 Intrinsically Safe

⚠ WARNING: Only one sensor may be connected per channel **unless otherwise specified**. *Connecting multiple sensors to a single channel in the console may cause damage to the unit and may create an explosion hazard, and will result in improper system operation.*

⚠ CAUTION: Ensure the sensor cable is wired correctly. *Reversing the plus and minus terminals may damage the Intrinsically Safe circuits.*

IMPORTANT: Do not use wire nuts to make sensor connections. *Use the no-strip electrical connectors supplied in the installation kit (or equivalent only) to make all connections. Failure to use the appropriate crimp-splice connectors will result in faulty operation and will void the warranty.*

NOTE:

- Wires that are cut back *shall be taped off* so they are isolated from moisture and will not cause any interference.
- Avoid wiring errors by using consistent color codes when making sensor cable connections.
 - Always use the RED (or other NON-BLACK color) wire for the + **signal**.
 - Always use the BLACK wire for the – **signal ground**.
 - Always use the BARE wire as the **SHIELD**.
- When making cable connections:
 - Remove 1½" (38 mm) of jacket from each cable.
 - Strip ¾" (5 mm) of insulation from the end of each conductor.

Entity Parameters

Parameter	Model	
	EVO™ ONE & EVO™ 200/400	EVO™ LLD
Part Number Designation	UDP (Digital)	ANA (Analogue)
U ₀ (V)	27.51	27.51
I ₀ (A)	0.153	0.099
L ₀ (mH)	1.4	1.4
C ₀ (μF)	1.04	1.04
P ₀ (W)	1.05	0.68
Relay Rating	2 amp at 240 volts	
Maximum RMS AC or DC Voltage, U _{max}	250 volts	

4.2.2.1 Terminal Label Overview

EVO™ ONE & EVO™ 400

INTRINSICALLY SAFE INPUTS										Uo=27.51v, Io=0.153A, Co=1.04uF, Lo=1.4mH, Po=1.05W			
INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5	INPUT 6	INPUT 7	INPUT 8	INPUT 9	INPUT 10	INPUT 11	INPUT 12	INPUT 13	INPUT 14
+	■	+	■	+	■	+	■	+	■	+	■	+	■

EVO™ LLD

INTRINSICALLY SAFE INPUTS				Uo=27.51v, Io=0.099A, Co=1.04uF, Lo=1.4mH, Po=0.68W			
INPUT 1	INPUT 2	INPUT 3	INPUT 4				
+	■	+	■				

EVO™ 200

INTRINSICALLY SAFE INPUTS						Uo=27.51v, Io=0.153A, Co=1.04uF, Lo=1.4mH, Po=1.05W					
INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5	INPUT 6						
+	■	+	■	+	■						

4.2.2.2 UDP Inputs – EVO™ ONE & EVO™ 200 / 400

The EVO™ ONE and EVO™ 400 have fourteen and the EVO™ 200 has six UDP inputs used to monitor UDP devices.

NOTE: Transducer FMP-LSU500-U is only for use with EVO™ ONE.*

EVO™ Console	UDP Inputs	Devices Monitored		
		Probes	Sensors	Transducers
ONE	14	» FMP-LL3-XXX » FMP-LL3-XXX-I	» FMP-ULS » FMP-UHS » FMP-XXX-U » FMP-XXX-UD	» *FMP-LSU500-U
200	6	» FMP-LL3-XXX » FMP-LL3-XXX-I	» FMP-ULS » FMP-UHS » FMP-XXX-U » FMP-XXX-UD	—
400	14	» FMP-LL3-XXX » FMP-LL3-XXX-I	» FMP-ULS » FMP-UHS » FMP-XXX-U » FMP-XXX-UD	—

4.2.2.2.1 FMP-LL3 Probe Connection

Sensor Connections – Junction Box

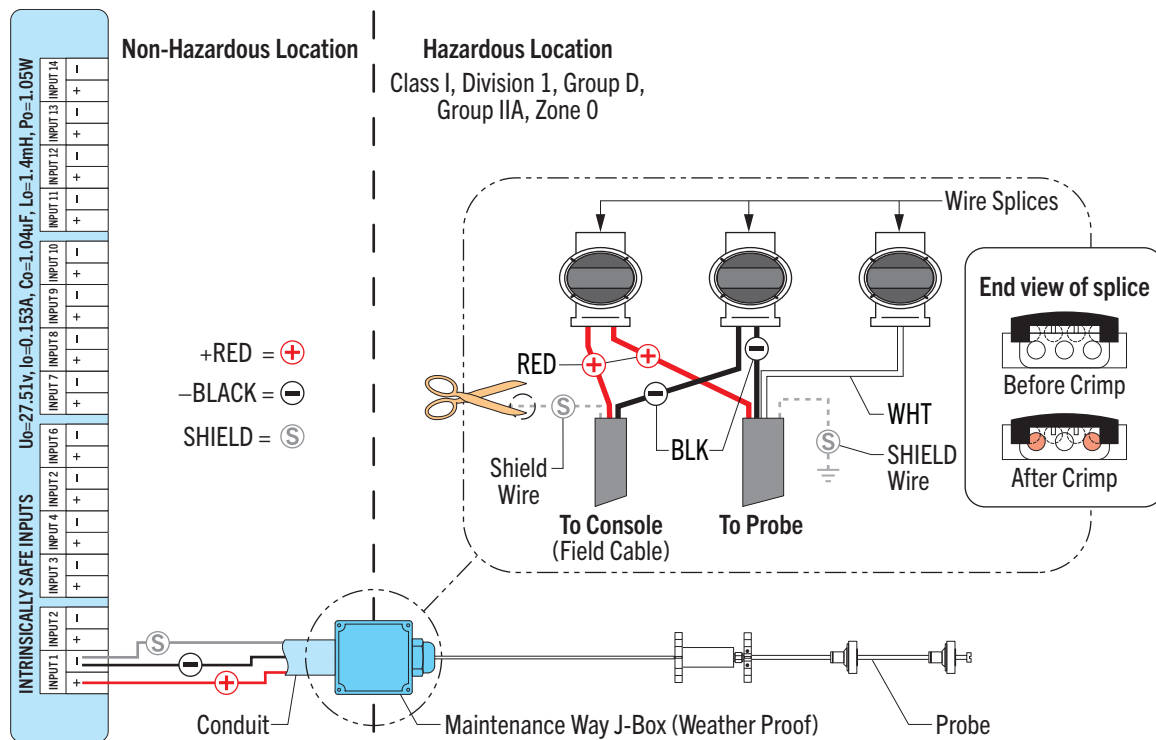
1. Splice the probe and field cables together *with approved splice connectors only* (see § 3.3.4.1), at the weatherproof junction box (see below).
 - a. BLACK wires from probe and field cable are spliced together.
 - b. RED wires from probe and field cable are spliced together.
 - c. Insert the WHITE wire from the probe cable into one of the openings of the third connector.

IMPORTANT: Make sure the WHITE wire is isolated. *Do not cut it. Connect it to a separate sealed connector.*

- d. Terminate the SHIELD wire of the probe to the junction box ground screw.
- e. Cut back the SHIELD wire of the field cable and tape off.

Sensor Connections – Console

1. Wire the two wires of the cable to the UDP input channel as described below:
 - a. Connect the BLACK and SHIELD wires to the minus – (BLK) terminal.
 - b. Connect the RED wire to the plus + (RED) terminal.



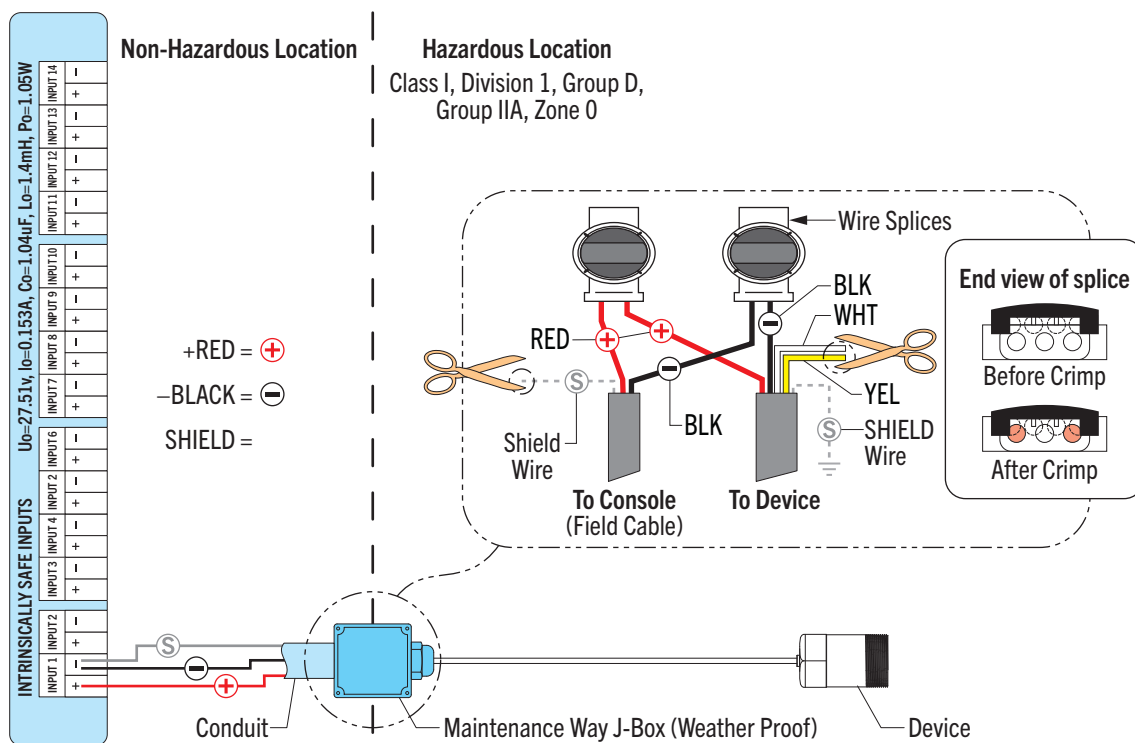
4.2.2.2.2 FMP-LSU500-U Transducer Connection

Sensor Connections – Junction Box

1. Splice the transducer and field cables together *with approved splice connectors only* (see § 3.3.4.1), at the weatherproof junction box (see below).
 - a. BLACK wires from transducer and field cable are spliced together.
 - b. RED wires from transducer and field cable are spliced together.
 - c. If a WHITE, or YELLOW wire is present on the transducer cable, cut it back and tape off.
 - d. Terminate the SHIELD wire of the transducer to the junction box ground screw.
 - e. Cut back the SHIELD wire of the field cable and tape off.

Sensor Connections – Console

1. Wire the two wires of the cable to the UDP input channel as described below:
 - a. Connect the BLACK wire to the minus – (BLK) terminal.
 - b. Connect the RED wire to the plus + (RED) terminal.



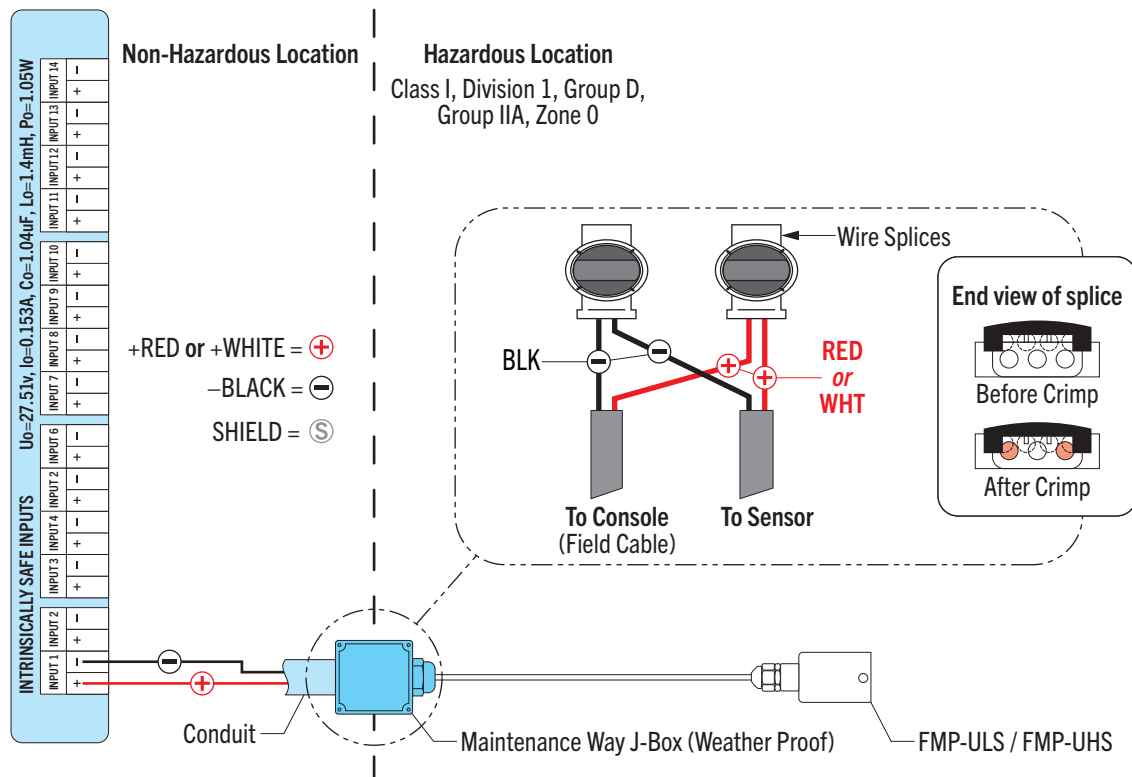
4.2.2.2.3 Individual FMP-ULS / FMP-UHS Sensor Connection

Sensor Connections – Junction Box

1. Splice each sensor with a field cable in their own weatherproof junction box *with approved splice connectors only* (see § 3.3.4.1 and illustration below).
 - a. BLACK wires from sensor and field cable are spliced together.
 - b. RED or WHITE wires from sensor and field cable are spliced together.

Sensor Connections – Console

1. Connect wires of the field wiring cable from both sensors to the same UDP input channel as described below:
 - a. Connect the BLACK wires to the minus – (BLK) terminal.
 - b. Connect the RED wires to the plus + (RED) terminal.



4.2.2.2.4 Dual FMP-ULS / FMP-UHS Parallel Sensor Connection

Two FMP-ULS/FMP-UHS sensors may be connected in parallel to one input channel if Dual ULS/UHS Sensor is selected as the Sensor Type in configuration. *When this is selected, this channel will be in alarm if either sensor is active and if both sensors are active. Therefore, both containments will need to be checked to determine which sensor is active.*

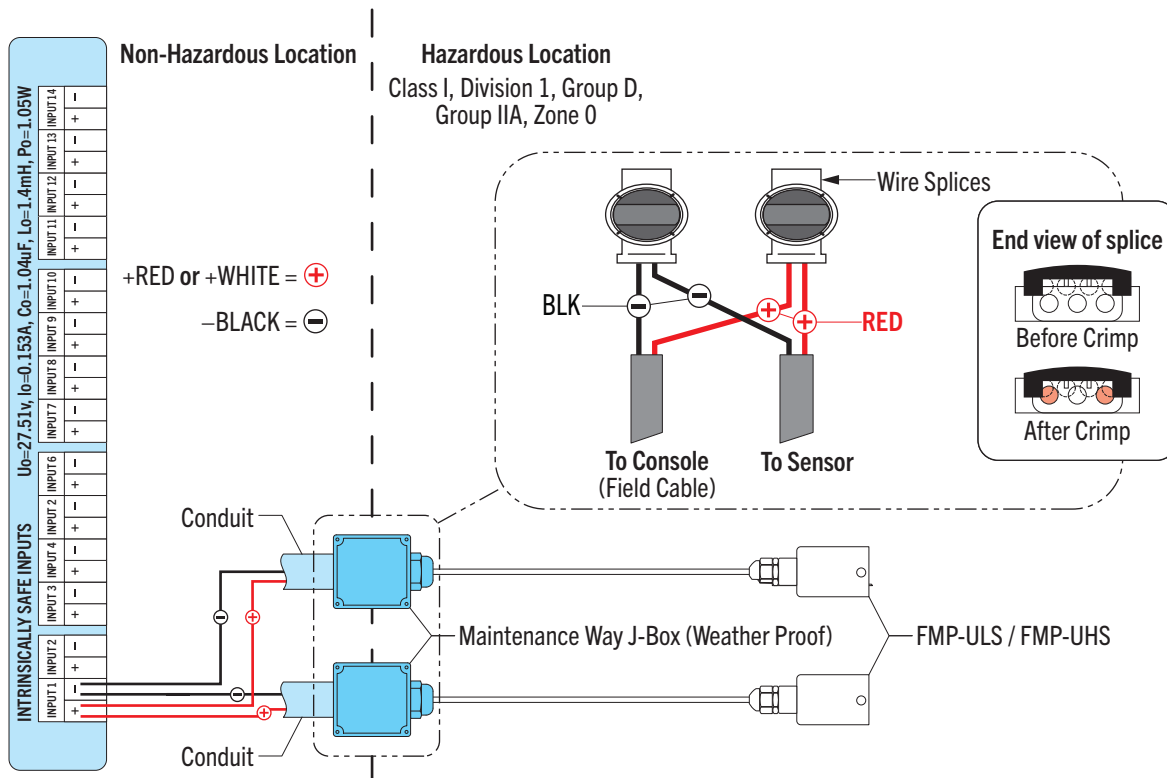
NOTE: This option is not available for the TSP-ULS and TSP-UHS sensors.

Sensor Connections – Junction Box

1. Splice each sensor with a field cable in their own weatherproof junction box *with approved splice connectors only* (see § 3.3.4.1 and illustration below).
 - a. BLACK wires from sensor and field cable are spliced together.
 - b. RED or WHITE wires from sensor and field cable are spliced together.

Sensor Connections – Console

1. Connect wires of the field wiring cable from both sensors to the same UDP input channel as described below:
 - a. Connect the BLACK wires to the minus – (BLK) terminal.
 - b. Connect the RED wires to the plus + (RED) terminal.



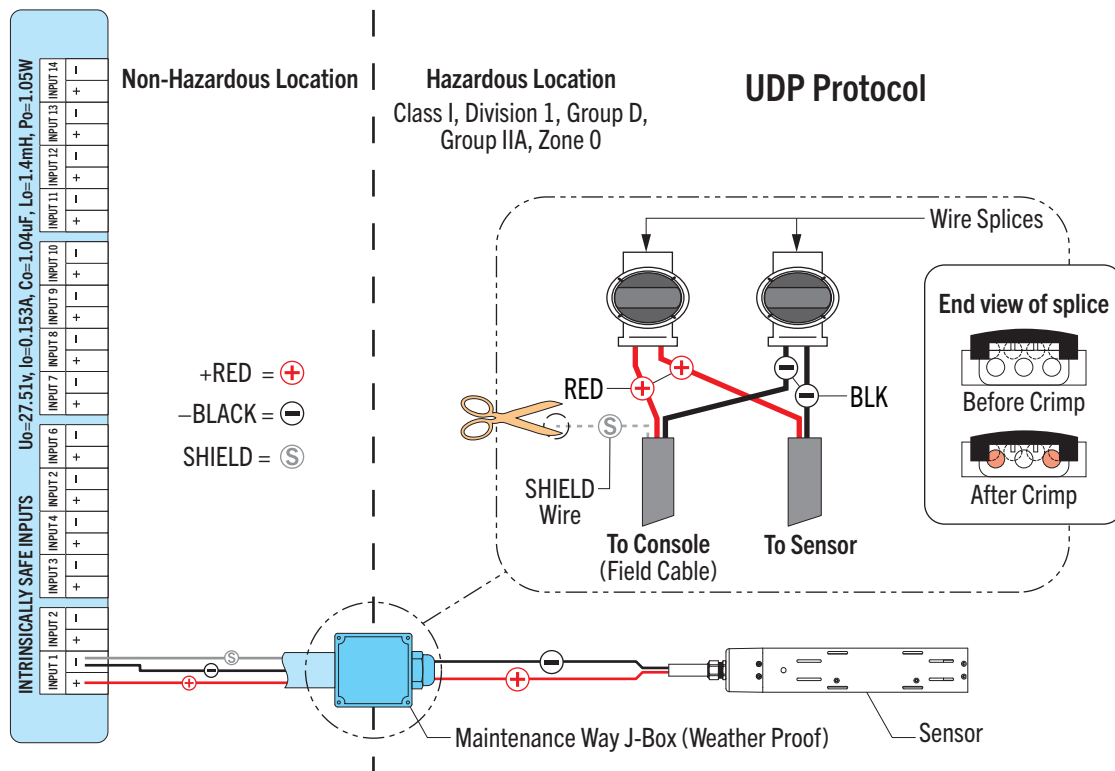
4.2.2.2.5 FMP-XXX-U Sensor Connection

Sensor Connections – Junction Box

1. Splice the sensor and field cables together *with approved splice connectors only* (see § 3.3.4.1), at the weatherproof junction box (see below).
 - a. BLACK wires from sensor and field cable are spliced together.
 - b. RED wires from sensor and field cable are spliced together.
 - c. Cut back the SHIELD wire of the field cable and tape off.

Sensor Connections – Console

1. Wire the two wires of the cable to the UDP input channel as described below:
 - a. Connect the BLACK and SHIELD wires to the minus – (BLK) terminal.
 - b. Connect the RED wire to the plus + (RED) terminal.



4.2.2.2.6 FMP-XXX-UD Sensor Connection

With Simple Apparatus

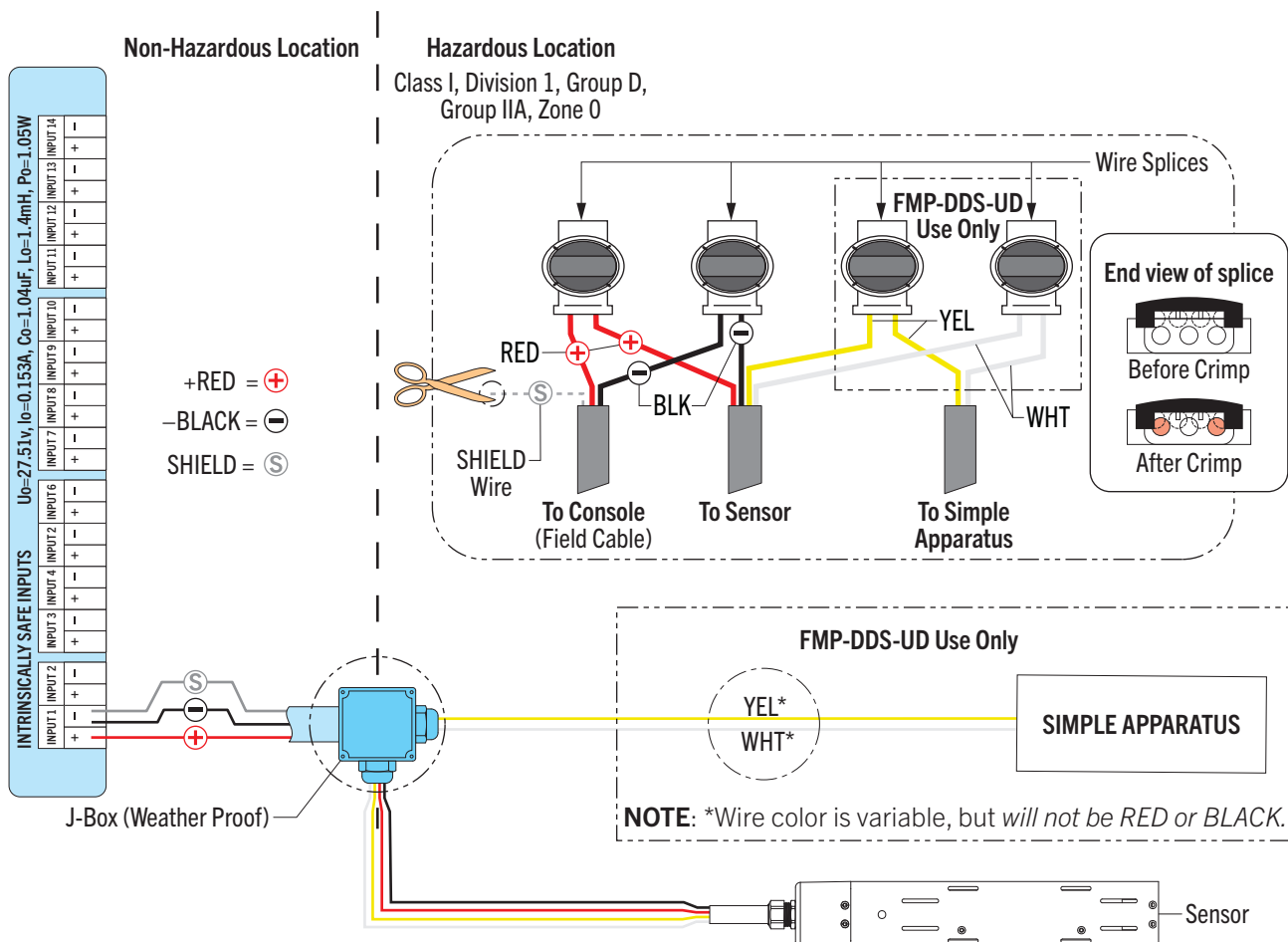
NOTE: If a simple apparatus is being used with the FMP-DDS-UD, the white and yellow wires must be spliced as shown.*

Sensor Connections – Junction Box

1. Splice the sensor and simple apparatus together, and then the sensor and field cables together *with approved splice connectors only* (see § 3.3.4.1), at the weatherproof junction box (see below).
 - a. BLACK wires from sensor and field cable are spliced together.
 - b. RED wires from sensor and field cable are spliced together.
 - c. WHITE wires from sensor and simple apparatus are spliced together.
 - d. YELLOW wires from sensor and simple apparatus are spliced together.
 - e. Cut back the SHIELD wire of the field cable and tape off.

Sensor Connections – Console

1. Wire the two wires of the cable to the UDP input channel as described below:
 - a. Connect the BLACK and SHIELD wires to the minus – (BLK) terminal.
 - b. Connect the RED wire to the plus + (RED) terminal.



Without Simple Apparatus

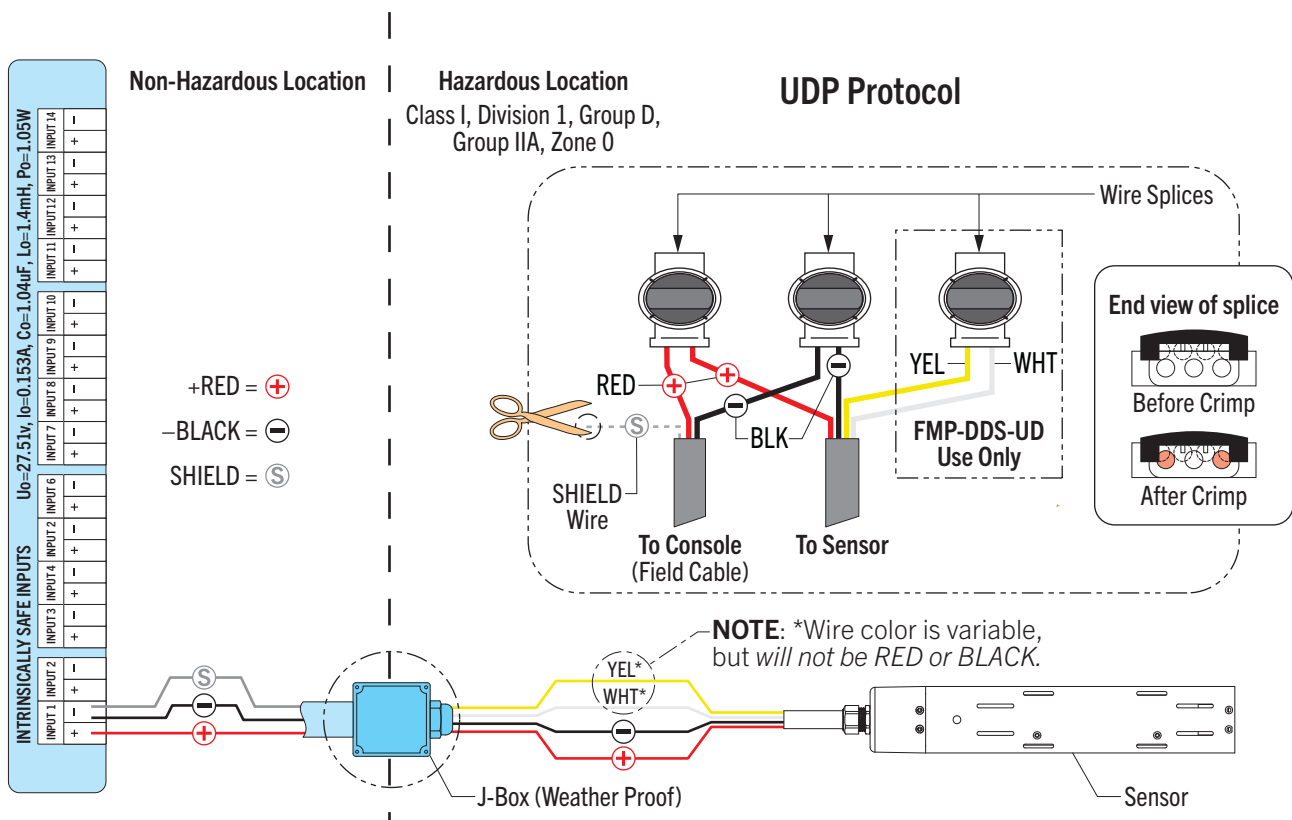
NOTE: If a simple apparatus is not being used with the FMP-DDS-UD, the white and yellow wires must be cut back and terminated as shown.*

Sensor Connections – Junction Box

1. Splice the sensor and simple apparatus together, and then the sensor and field cables together *with approved splice connectors only* (see § 3.3.4.1), at the weatherproof junction box (see below).
 - a. BLACK wires from sensor and field cable are spliced together.
 - b. RED wires from sensor and field cable are spliced together.
 - c. WHITE and YELLOW wires from sensor are spliced together.
 - d. Cut back the SHIELD wire of the field cable and tape off.

Sensor Connections – Console

1. Wire the two wires of the cable to the UDP input channel as described below:
 - a. Connect the BLACK and SHIELD wires to the minus – (BLK) terminal.
 - b. Connect the RED wire to the plus + (RED) terminal.



4.2.2.3 4–20 mA Inputs – EVO™ LLD

The EVO™ LLD console has four intrinsically safe 4–20 mA inputs used to monitor FMP-LSU500 or TS-LSU500 transducers.

EVO™ Console	4–20 mA Inputs – Intrinsically Safe	Devices Monitored
LLD	4	FMP-LSU500 and TS-LSU500 4–20 mA Transducers

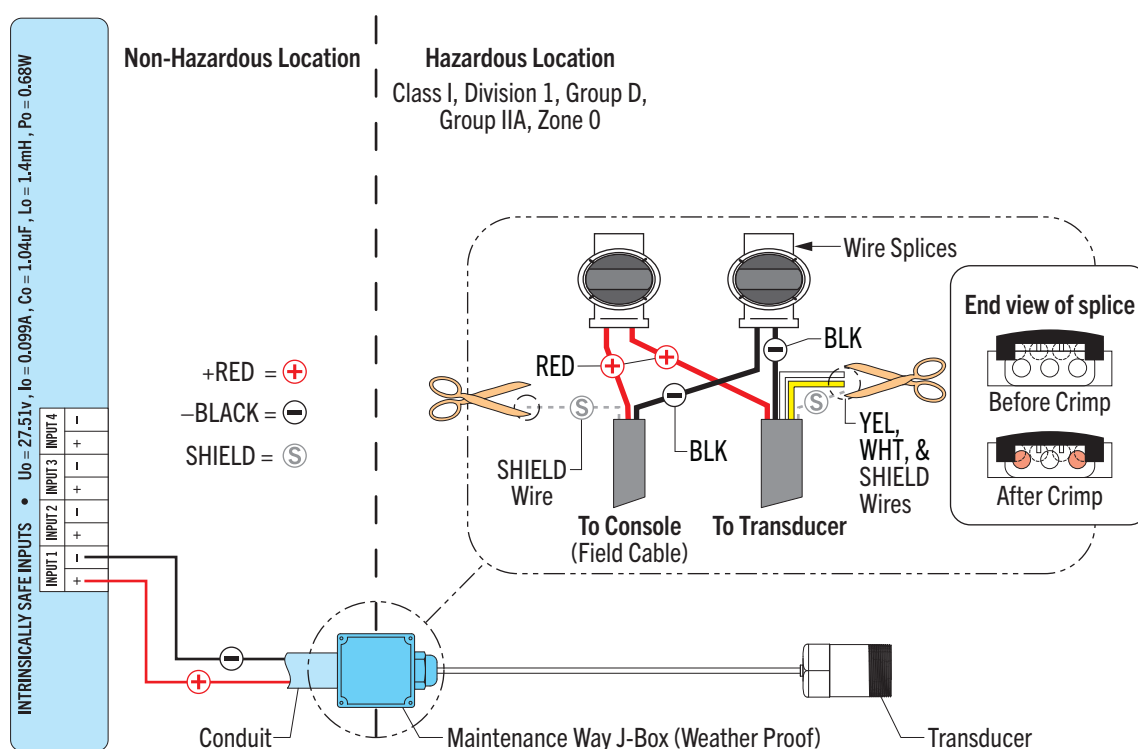
4.2.2.3.1 FMP-LSU500 Transducer Connection

Sensor Connections – Junction Box

1. Splice the transducer and field cables together *with approved splice connectors only* (see § 3.3.4.1), at the weatherproof junction box (see below).
 - a. BLACK wires from transducer and field cable are spliced together.
 - b. RED wires from transducer and field cable are spliced together.
 - c. If a WHITE, YELLOW, or SHIELD wire is present on the transducer cable, cut it back and tape off.
 - d. Cut back the SHIELD wire of the field cable and tape off.

Sensor Connections – Console

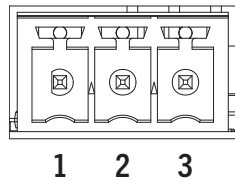
1. Wire the two wires of the cable to the 4–20 mA input channel as described below:
 - a. Connect the BLACK wire to the minus – (BLK) terminal.
 - b. Connect the RED wire to the plus + (RED) terminal



4.2.3 RS-485 Turbine Pump Interface™

Turbine Pump Interface™ (TPI) may be used instead of relays to control pump operations.

1. Wire the RS-485 connection per the pin designations as shown here.



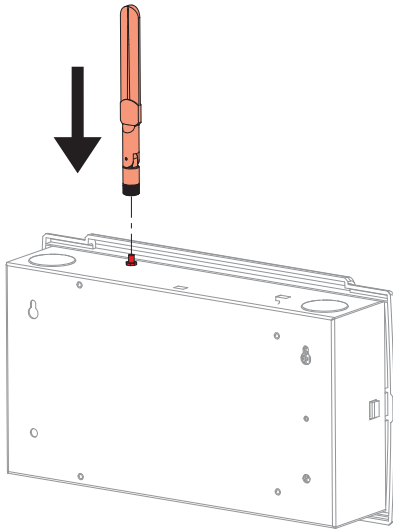
PIN Number	Function
1	+
2	-
3	GND

NOTE: For TPI communication, + is associated with A, and – is associated with B.

4.2.4 Wi-Fi

If the unit was ordered with the Wi-Fi option, remove the antenna from the inside of the console and screw it onto the antenna connector located on top of the console.

NOTE: See §4.1, Step 3 for instruction on removing the console faceplate.

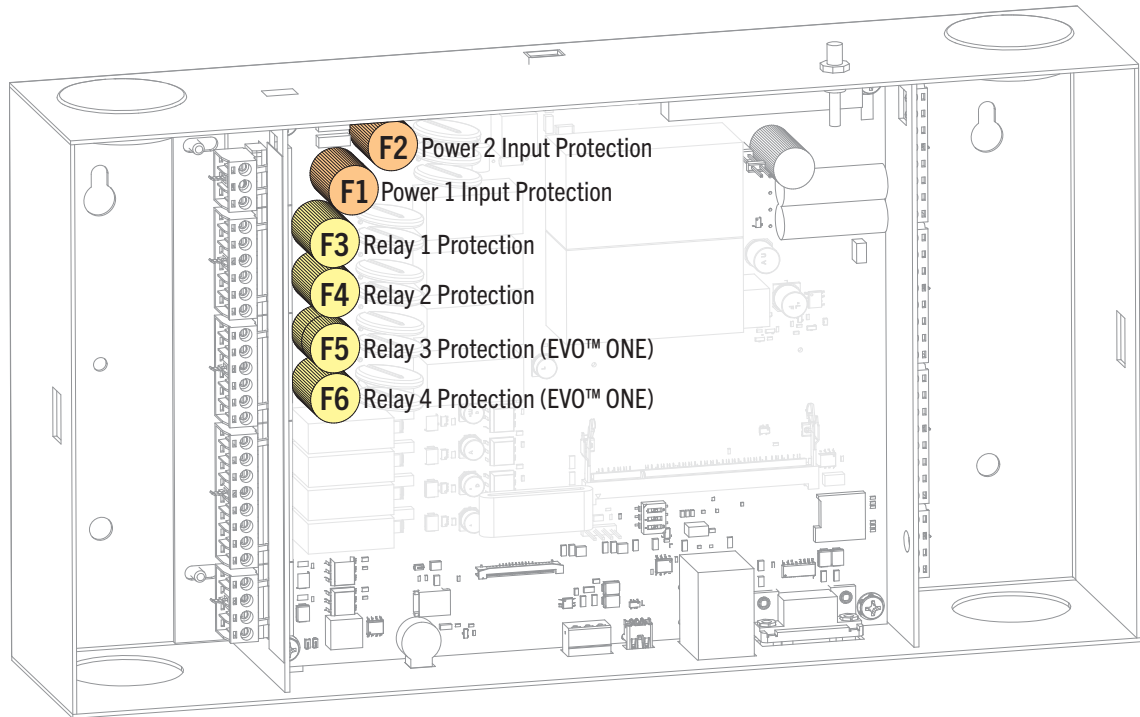


4.2.5 Re-Energize the Console

1. Reinstall the front cover by pressing the cover release tabs inwards and guiding them into the cover release tabs slot.
2. Reverse the Lockout / Tagout procedure performed in Step 1 of § 4.1 for the EVO™ LLD console and related systems (re-energize).

5 Fuse Testing and Replacement

5.1 Fuse Identification



5.2 Power Input Protection Fuses

If an EVO™ is seemingly experiencing a power issue, as in the device will not power on at all, one troubleshooting method is to try replacing the power input fuses.

F1 and F2 are protecting the power inputs to the EVO™ from an overvoltage event.

There are two methods of failure of a power input fuse:

1. An overvoltage event occurred. *In this case, it's quite likely that replacing the fuse will restore operation.*
2. A component downstream in the circuit failed. *In this case, replacing the fuse will almost never restore operation, and will result in the new fuse blowing immediately.*

Fuse Testing Procedure

To check if a fuse is blown, remove the fuse, and use a multimeter to check the resistance of the two leads of the brown fuses for an open circuit. *If the resistance is infinite and it is an open circuit, replace the fuse.*

- If the power issue is **resolved**, the fuse properly saved the power inputs from the overvoltage event.
- If the power issue is **not resolved**, there is a component downstream that has failed, and the main board will need to be replaced.

5.3 Relay Protection Fuses

If a relay on an EVO™ is seemingly experiencing a power issue, as in the relay channel does not work, one troubleshooting method is to try replacing the relay fuses.

F3, F4, F5, and F6 are protecting the relay outputs to the EVO™ from an overvoltage event. There are three methods of failure of a relay fuse:

1. An overvoltage event occurred. *In this case, it's quite likely that replacing the fuse will restore operation.*
2. A component downstream in the circuit failed. *In this case, replacing the fuse will almost never restore operation, and will result in the new fuse blowing immediately.*
3. The relay load has too low of an impedance. *In this case, replacing the fuse will result in the new fuse blowing immediately or over time unless the source loading the relay output is addressed.*
 - a. **For 3 A Fuses:** For the source to be considered “addressed”, it must have an impedance that allows the fuse to run at no higher than 2.4 A, as the 3 A fuse at 80% margin is 2.4 A. *For example, if the connected device has a 120 VAC source, the relay output must have an impedance of less than 50 Ohms, as $120\text{ VAC}/2.4\text{ A} = 50\text{ Ohms}$.*

Fuse Testing Procedure

To check if a fuse is blown, remove the fuse, and use a multimeter to check the resistance of the two leads of the brown fuses for an open circuit. If the resistance is infinite and it is an open circuit, replace the fuse.

- If the relay issue is **resolved**, *the fuse properly saved the power inputs from the overvoltage event.*
- If the relay issue is **not resolved**, *there is either a component downstream that has failed and the main board will need to be replaced, or the source loading the relay output was not addressed properly.*

6 Care and Maintenance

⚠ WARNING: Only Franklin Electric certified technicians are authorized (see § 2.3) to open the EVO™ console. *Electrical hazards exist and injury or death may occur if the console interior is accessed by unauthorized personnel.*

6.1 Console Care

Gently wipe the outer areas of the console using a soft, damp cloth to eliminate any residue or buildup. Be cautious, as certain chemicals might harm the protective cover on the LCD display. Avoid directly spraying any substances onto the console. Cords and cables extending from the inside and bottom of the console could carry electrical currents. Exercise caution when dealing with these areas to prevent the risk of electric shock. Make sure to separate data communication and electrical energy lines to prevent electrical interference from affecting data transmission lines (which could lead to inaccurate data returns).

6.2 Console Maintenance

There is limited maintenance the Owner / User needs to perform on the EVO™ Series console. To keep the unit in good, serviceable condition, follow the procedures outlined in this section.

6.2.1 LCD Touchscreen Calibration

If the touchscreen does not respond to input properly, it may need to be recalibrated. There are three methods of initiating touchscreen calibration.

Via Calibrate Touchscreen Tool on LCD Touchscreen

1. Navigate to **Quick Jump Menu > Tools > Calibrate Touchscreen**.
2. Select **Yes** when prompted with *Are you sure you want to recalibrate the touchscreen?*
3. Follow the touchscreen prompts to complete the calibration process.

Via Recalibrate Touchscreen Tool on Web Browser Interface

1. Navigate to **Tools > Recalibrate Touchscreen**.
2. Select **Yes** when prompted with *Are you sure you want to recalibrate the touchscreen?*
3. Follow the touchscreen prompts to complete the calibration process.

Manually

1. Reboot the console.
2. When the touchscreen populates the EVO™ Series loading page, *press and hold your finger on the screen until the calibration prompts load*.
3. Follow the touchscreen prompts to complete the calibration process.

7 Appendix

7.1 Related Documents

Documentation can be found online at www.franklinfueling.com.

Part Number	Description
000-1027	Remote Tank Overfill Alarm Install Guide
000-2083	FMP-DDS & FMP-DTS Install Guide
000-2084	FMP-HIS & FMP-HIS-U Install Guide
000-2086	FMP-DIS/FMP-EIS & FMP-DIS-U/FMP-EIS-U
409723001	FMP-LL3 Probe Install Guide
10000010281	FMP-ULS Sensor Install Guide
10000010288	FMP-UHS Sensor Install Guide
10000021157	Electronic Line Leak Detection Featuring AUTO-LEARN® For EVO™ 600/6000/LLD Install Guide
10000022484	Electronic Line Leak Detection Featuring AUTO-LEARN® For EVO™ ONE Install Guide

7.2 Certifications & Approvals

Product(s)	Certificate Number	Certification / Approval
EVO™ ONE	MH16589	UL/ULC ATEX IECEX
EVO™ LLD	DEMKO 17 ATEX 1902	
EVO™ 200/400	IECEX UL 17.0059	
TS-LSU500	E235878	
	DEMKO 06 ATEX 0525218X	
	IECEX UL 12.0060X	
FMP-LSU500 FMP-LSU500-U	E235878	
	DEMKO 14 ATEX 1372X	
	IECEX UL 14.0086X	
FMP-ULS FMP-UHS	E235878	
	UL 21 ATEX 2519	
	IECEX UL 21.0014	
FMP-LL3	E235878	
	DEMKO 14 ATEX 1229X	
	IECEX UL 14.0007X	

NOTE: The TS-LS500, FMP-LS500, and FMP-LS500-U systems have third party certification of leak detection capabilities in conjunction with EVO™ series consoles.

7.3

Control Drawings

All control drawings in this section apply to EVO™ ONE, LLD, 200, and 400 consoles.

7.3.1

UL

NOTES:

1. THE MODEL ANXA-(C) SHALL NOT BE CONNECTED TO ANY EQUIPMENT WHICH USES OR GENERATES GREATER THAN 250V.

2. EACH GROUND TERMINAL SHALL BE CONNECTED TO A SUITABLE SYSTEM EARTH GROUND. THE DC RESISTANCE BETWEEN GROUND TERMINALS AND EARTH GROUND SHALL BE LESS THAN 1 OHM.

3. THE MODEL ANXA-(C) WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND APPLICABLE NATIONAL OR LOCAL CODES. CONDUCTORS OF DIFFERENT INTRINSICALLY SAFE CIRCUITS RUN IN CABLE/CONDUIT MUST HAVE AT LEAST 0.25mm OF INSULATION.

4. CAPACITANCE AND INDUCTANCE OF THE FIELD WIRING FROM THE INTRINSICALLY SAFE EQUIPMENT TO THE BARRIER SHALL BE INTRINSICALLY SAFE. THE CAPACITANCE (C) AND INDUCTANCE (L) SHALL BE INCLUDED IN THE FIELD WIRING AS SHOWN IN THE DIAGRAM. THE BARRIER CAPACITANCE (Ccable) PLUS INTRINSICALLY SAFE EQUIPMENT CAPACITANCE (Ci) MUST BE LESS THAN THE MARKED CAPACITANCE (Co) SHOWN ON ANY BARRIER USED. THE SAME APPLIES FOR INDUCTANCE (Li, Lcable and Lo, RESPECTIVELY). WHERE THE CABLE CAPACITANCE AND INDUCTANCE VALUES ARE NOT KNOWN, THE FOLLOWING VALUES SHALL BE USED: Ccable = 60pF/71.7, 200pF/m, Lcable = 0.24nH/ft (0.74nH/m).

5. WIRING, CABLEING AND SEALS MUST BE INSTALLED IN ACCORDANCE WITH THE NEC, CEC OR OTHER APPLICABLE NATIONAL OR LOCAL CODES.

6. USE ONLY CABLE THAT IS SPECIFIED IN THE USER INSTALLATION MANUAL OR LISTED EQUIVALENT FOR THE INSTALLATION OF LIQUID TIGHT PROBES.

7. USE THE FOLLOWING WIRE TYPES ONLY, 18 AWG MINIMUM, TO CONNECT SENSORS TO THE ANXA-(C) ASSOCIATED APPARATUS, OIL AND GASOLINE RESISTANT TYPES.

8. USE ONLY CRIMP OR INSULATION DISPLACEMENT TYPE CONNECTORS FOR ELECTRICAL CONNECTIONS (DO NOT USE WIRE NUTS OR OTHER TYPE CONNECTORS).

9. SEAL ALL FIELD WIRING CONNECTIONS FROM MOISTURE.

10. SEE INSTALLATION MANUAL FOR MORE DETAIL.

11. GENERAL CONTRACTOR MUST SUPPLY THE SPECIFIED WIRE, CONDUITS AND ELECTRICAL ACCESSORIES.

12. THE ENTITY CONCEPT ALLOWS THE USER TO IDENTIFY ACCEPTABLE COMBINATIONS OF INTRINSICALLY SAFE APPARATUS AND ACCESSORIES. THE USER SHALL BE RESPONSIBLE FOR IDENTIFYING AS A SYSTEM EACH APPARATUS IS EXAMINED SEPARATELY BY A NATIONALLY RECOGNIZED TEST LABORATORY (NRTL) AND ASSIGNED A SET OF PARAMETERS CALLED ENTITY PARAMETERS. THE ENTITY PARAMETERS FOR ANXA-(C) (ASSOCIATED APPARATUS) CAN BE FOUND IN THE DIAGRAM TO THE RIGHT. TO DETERMINE THE Vmax FOR THE INTRINSICALLY SAFE APPARATUS, THE USER MUST OBTAIN THE ENTITY PARAMETERS OF THE INTRINSICALLY SAFE APPARATUS AND COMBINATION OF THE INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS MUST COMPLY WITH THE FOLLOWING:

$U_0 (V_{oc}) \leq U_i (V_{max})$
 $I_0 (I_{sc}) \leq I_i (I_{max})$
 $P_0 \leq P_i (P_{max})$
 $C_0 \leq C_i (C_{max})$
 $L_0 (L_0) \geq L_i + L_{cable}$ (SEE NOTE 4)

13. THE OUTPUT CURRENT OF THIS ASSOCIATED APPARATUS IS LIMITED BY A RESISTOR SUCH THAT THE OUTPUT VOLTAGE-CURRENT PLOT IS A STRAIGHT LINE DRAWN BETWEEN OPEN-CIRCUIT VOLTAGE AND SHORT-CIRCUIT CURRENT.

14. ASSOCIATED APPARATUS MUST BE INSTALLED IN AN ENCLOSURE SUITABLE FOR THE APPLICATION IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) FOR INSTALLATION IN THE UNITED STATES, THE CANADIAN ELECTRICAL CODE FOR INSTALLATIONS IN CANADA, OR OTHER LOCAL CODES, AS APPLICABLE.

15. INTRINSICALLY SAFE CIRCUITS MUST BE WIRED AND SEPARATED IN ACCORDANCE WITH ARTICLE 504.20 OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) OR OTHER LOCAL CODES, AS APPLICABLE.

16. THIS ASSOCIATED APPARATUS HAS NOT BEEN EVALUATED FOR USE IN COMBINATION WITH ANOTHER ASSOCIATED APPARATUS.

17. EQUIPMENT COMPLIES WITH THE FOLLOWING STANDARDS: UL1236, CAN/CSA C22.2 NO. 131, CAN/CSA C22.2 NO. 132, CAN/CSA C22.2 NO. 10079-0-15, 3RD ED., CAN/CSA C22.2 NO. 10079-11-2, 2ND EDITION, AND CAN/CSA C22.2 NO. 142-M9811REAFFIRMED 2014).

18. UL LOGO DISPLAYED:

[Exid]

US LISTED 6L79

HAZARDOUS LOCATION

CLASS 1, DIV. 1, GROUP D

NON-INTRINSICALLY SAFE COMPARTMENT

NON-HAZARDOUS LOCATION

MODEL ANXA-(A,B,C)

ASSOCIATED APPARATUS

EACH TERMINAL PAIR: +, -

$U_0 = 27.5V_{dc}$
 $I_0 = 1.0mA$
 $C_0 = 1.04nF$
 $L_0 = 1.4mH$
 $P_0 = 1.05W$

MODEL ANXA-(A,B,C)

ASSOCIATED APPARATUS

EACH TERMINAL PAIR: +, -

$U_0 = 27.5V_{dc}$
 $I_0 = 0.089A$
 $C_0 = 1.04nF$
 $L_0 = 1.4mH$
 $P_0 = 0.68W$

INTRINSICALLY SAFE COMPARTMENT

HAZARDOUS LOCATION

CLASS 1, DIV. 1, GROUP D

NON-INTRINSICALLY SAFE COMPARTMENT

NON-HAZARDOUS LOCATION

MODEL ANXA-(A,B,C)

ASSOCIATED APPARATUS

EACH TERMINAL PAIR: +, -

$U_0 = 27.5V_{dc}$
 $I_0 = 1.0mA$
 $C_0 = 1.04nF$
 $L_0 = 1.4mH$
 $P_0 = 1.05W$

MODEL ANXA-(A,B,C)

ASSOCIATED APPARATUS

EACH TERMINAL PAIR: +, -

$U_0 = 27.5V_{dc}$
 $I_0 = 0.089A$
 $C_0 = 1.04nF$
 $L_0 = 1.4mH$
 $P_0 = 0.68W$

21. WARNING: THIS UNIT HAS MORE THAN ONE POWER SUPPLY CONNECTION POINT. DISCONNECT ALL POWER SUPPLIES BEFORE SERVICING.

CETTE UNIT A PLUS D'UN POINT DE D'ALIMENTATION DÉBRANCHEZ TOUTES LES ALIMENTATIONS ÉLECTRIQUES AVANT L'ENTRETIEN.

22. WARNING: OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY. TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

AVERTISSEMENT: LA SUBSTITUTION DES COMPOSANTS PEUT ENDANGERER LA SÉCURITÉ INTRINSÈQUE. POUR ÉVITER L'IGNITION DE MATIÈRES INFLAMMABLES OU COMBUSTIBLES, DÉBRANCHEZ L'ALIMENTATION AVANT L'ENTRETIEN.

23. THE ASSOCIATED APPARATUS MAY ALSO BE CONNECTED TO SIMPLE APPARATUS AS DEFINED IN ARTICLE 504.2 AND INSTALLED AND TEMPORARILY CLASSIFIED IN ACCORDANCE WITH ARTICLE 504.10(B) OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70), OR OTHER LOCAL CODES, AS APPLICABLE.

LE DISPOSITIF ASSOCIÉ PEUT ÉGALEMENT ÊTRE CONNECTÉ À DES APPAREILS SIMPLES DÉFINIS À L'ARTICLE 504.2 ET INSTALLÉS ET CLASSIFIÉS TEMPORAIREMENT EN CONFORMITÉ AVEC L'ARTICLE 504.10(B) DU CODE ÉLECTRIQUE (ANSI/NFPA 70), OU D'AUTRES CODES LOCAUX, SI APPLICABLE.

19. CONTROL DRAWING 228180006 SHIPPED WITH PRODUCT WILL HAVE DEDICATED PAGE REPRODUCING ALL ABOVE INFORMATION AND THE NOTE:

ONLY THIS PAGE REPRESENTS UL CONTROL DRAWING FOR THE UNITED STATES AND CANADA. ADDITIONAL PAGES OF THIS DOCUMENT REPRESENT SIMILAR INFORMATION FOR ALTERNATE COUNTRIES OR CERTIFICATIONS.

20. WARNING: ASSOCIATED APPARATUS NON HAZARDOUS LOCATION PROVIDES INTRINSICALLY SAFE CIRCUITS FOR SENSORS LOCATED IN CLASS 1, DIV. 1, GROUP D HAZARDOUS LOCATIONS. IT IS NOT INSTALLED PER CONTROL DRAWING 228180006, SEE INSTALLATION INSTRUCTIONS.

APPAREILLAGE ASSOCIÉ ZONE NON DANGEREUSE FOURNIT DES CIRCUITS À SÉCURITÉ INTRINSÈQUE POUR DES SENSORS SITUÉS DANS LA CLASSE 1, DIV. 1 GROUPE D DES ENDROITS DANGEREUX. LORSQU'IL EST INSTALLÉ SELON LE SCHEMA N° 228180006, VOIR LES INSTRUCTIONS D'INSTALLATION.

21. WARNING: THIS UNIT HAS MORE THAN ONE POWER SUPPLY CONNECTION POINT. DISCONNECT ALL POWER SUPPLIES BEFORE SERVICING.

CETTE UNIT A PLUS D'UN POINT DE D'ALIMENTATION DÉBRANCHEZ TOUTES LES ALIMENTATIONS ÉLECTRIQUES AVANT L'ENTRETIEN.

22. WARNING: OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY. TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

AVERTISSEMENT: LA SUBSTITUTION DES COMPOSANTS PEUT ENDANGERER LA SÉCURITÉ INTRINSÈQUE. POUR ÉVITER L'IGNITION DE MATIÈRES INFLAMMABLES OU COMBUSTIBLES, DÉBRANCHEZ L'ALIMENTATION AVANT L'ENTRETIEN.

23. THE ASSOCIATED APPARATUS MAY ALSO BE CONNECTED TO SIMPLE APPARATUS AS DEFINED IN ARTICLE 504.2 AND INSTALLED AND TEMPORARILY CLASSIFIED IN ACCORDANCE WITH ARTICLE 504.10(B) OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70), OR OTHER LOCAL CODES, AS APPLICABLE.

LE DISPOSITIF ASSOCIÉ PEUT ÉGALEMENT ÊTRE CONNECTÉ À DES APPAREILS SIMPLES DÉFINIS À L'ARTICLE 504.2 ET INSTALLÉS ET CLASSIFIÉS TEMPORAIREMENT EN CONFORMITÉ AVEC L'ARTICLE 504.10(B) DU CODE ÉLECTRIQUE (ANSI/NFPA 70), OU D'AUTRES CODES LOCAUX, SI APPLICABLE.

7.4 Glossary

ELLD.....	Electronic Line Leak Detection
FMP-LS500	Is the 4-20 mA analogue Electronic Line Leak Detection (ELLD) system
FMP-LS500-U....	Is the UDP Electronic Line Leak Detection (ELLD) system
LS500.....	Refers to all LS500 Electronic Line Leak Detection (ELLD) systems
PC	Personal Computer
RS-485	An IEEE standard for serial communications using shielded or unshielded twisted pair cables
TPI.....	Turbine Pump Interface™
TS-LS500.....	Is the legacy 4–20 mA Electronic Line Leak Detection (ELLD) system
USB.....	Universal Serial Bus



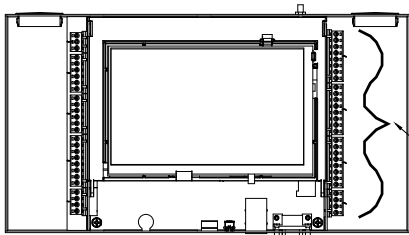
Franklin Electric

FUELING SYSTEMS

NOTES:

1. THE MODEL UDP(A-C) SHALL NOT BE CONNECTED TO ANY EQUIPMENT WHICH USES OR GENERATES GREATER THAN 250V.
2. EACH GROUND TERMINAL SHALL BE CONNECTED TO A SUITABLE SYSTEM EARTH GROUND. THE DC RESISTANCE BETWEEN GROUND TERMINALS AND EARTH GROUND SHALL BE LESS THAN 1 OHM.
3. THE MODEL UDP(A-C) WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND APPLICABLE NATIONAL OR LOCAL CODES. CONDUCTORS OF DIFFERENT INTRINSICALLY SAFE CIRCUITS RUN IN THE SAME CABLE/CONDUIT MUST HAVE AT LEAST 0.25mm OF INSULATION.
4. CAPACITANCE AND INDUCTANCE OF THE FIELD WIRING FROM THE INTRINSICALLY SAFE EQUIPMENT TO THE BARRIER SHALL BE CALCULATED AND MUST BE INCLUDED IN THE SYSTEM CALCULATIONS AS SHOWN IN THE DIAGRAM TO THE RIGHT. CABLE CAPACITANCE (Ccable) PLUS INTRINSICALLY SAFE EQUIPMENT CAPACITANCE (Ci) MUST BE LESS THAN THE MARKED CAPACITANCE(Co) SHOWN ON ANY BARRIER USED. THE SAME APPLIES FOR INDUCTANCE (Li, Lcable AND Lo, RESPECTIVELY). WHERE THE CABLE CAPACITANCE AND INDUCTANCE PER FOOT ARE NOT KNOWN, THE FOLLOWING VALUES SHALL BE USED:
Ccable=60pF/ft, (200pF/m), Lcable=0.2uH/ft (0.7uH/m).
5. WIRING, CABLING AND SEALS MUST BE INSTALLED IN ACCORDANCE WITH THE NEC, CEC OR OTHER APPLICABLE NATIONAL OR LOCAL CODES.
6. USE ONLY CABLE THAT IS SPECIFIED IN THE USER INSTALLATION MANUAL OR LISTED EQUIVALENT FOR THE INSTALLATION OF LIQUID LEVEL PROBES.
7. USE THE FOLLOWING WIRE TYPES ONLY, 18 AWG MINIMUM, TO CONNECT SENSORS TO THE UDP(A-C) ASSOCIATED APPARATUS, OIL AND GASOLINE RESISTANT TYPES.
8. USE ONLY CRIMP OR INSULATION DISPLACEMENT TYPE CONNECTORS FOR ELECTRICAL CONNECTIONS (DO NOT USE WIRE NUTS OR OTHER TYPE CONNECTORS).
9. SEAL ALL FIELD WIRING CONNECTIONS FROM MOISTURE.
10. SEE INSTALLATION MANUAL FOR MORE DETAIL.
11. THE GENERAL CONTRACTOR MUST SUPPLY THE SPECIFIED WIRE, CONDUITS AND ELECTRICAL ACCESSORIES.
12. THE ENTITY CONCEPT ALLOWS THE USER TO IDENTIFY ACCEPTABLE COMBINATIONS OF INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS THAT HAVE NOT BEEN EXAMINED AS A SYSTEM. EACH APPARATUS IS EXAMINED SEPARATELY BY A NATIONALLY RECOGNIZED TEST LABORATORY (NRTL) AND ASSIGNED A SET OF PARAMETERS CALLED ENTITY PARAMETERS. THE ENTITY PARAMETERS FOR UDP(A-C) (ASSOCIATED APPARATUS) CAN BE FOUND IN THE DIAGRAM TO THE RIGHT. TO DETERMINE THE Vmax (Ui), Imax (Ii), Ci, Li AND Pi VALUES THE CONTROL DRAWING FOR THE INTRINSICALLY SAFE APPARATUS SHALL BE USED. THE COMBINATION OF THE INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS MUST COMPLY WITH THE FOLLOWING:
 $U_o (Voc) \leq U_i (Vmax)$
 $I_o (Isc) \leq I_i (Imax)$
 $P_o \leq P_i (Pmax)$
 $C_o (Ca) \geq C_i + Ccable$ (SEE NOTE 4)
 $L_o (La) \geq L_i + Lcable$ (SEE NOTE 4)

NON-INTRINSICALLY SAFE
COMPARTMENT

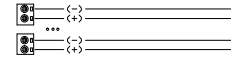


INTRINSICALLY SAFE
COMPARTMENT

NON HAZARDOUS LOCATION

MODEL UDP(A,B,C)
ASSOCIATED APPARATUS
EACH TERMINAL PAIR: +, -

$U_o = 27.51Vdc$
 $I_o = 0.153 A$
 $C_o = 1.04\mu F$
 $L_o = 1.4 mH$
 $P_o = 1.05W$



HAZARDOUS LOCATION

CLASS I, DIV. 1, GROUP D

TO INTRINSICALLY SAFE APPARATUS
OR SIMPLE APPARATUS

13. THE OUTPUT CURRENT OF THIS ASSOCIATED APPARATUS IS LIMITED BY A RESISTOR SUCH THAT THE OUTPUT VOLTAGE-CURRENT PLOT IS A STRAIGHT LINE DRAWN BETWEEN OPEN-CIRCUIT VOLTAGE AND SHORT-CIRCUIT CURRENT.
14. ASSOCIATED APPARATUS MUST BE INSTALLED IN AN ENCLOSURE SUITABLE FOR THE APPLICATION IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) FOR INSTALLATION IN THE UNITED STATES, THE CANADIAN ELECTRICAL CODE FOR INSTALLATIONS IN CANADA, OR OTHER LOCAL CODES, AS APPLICABLE.
15. INTRINSICALLY SAFE CIRCUITS MUST BE WIRED AND SEPARATED IN ACCORDANCE WITH ARTICLE 504.20 OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) OR OTHER LOCAL CODES, AS APPLICABLE.
16. THIS ASSOCIATED APPARATUS HAS NOT BEEN EVALUATED FOR USE IN COMBINATION WITH ANOTHER ASSOCIATED APPARATUS.
17. EQUIPMENT COMPLIES WITH THE FOLLOWING STANDARDS: UL1238, SIXTH EDITION AND UL 913, EIGHTH EDITION, CAN/CSA-C22.2 NO. 60079-0.15, 3RD ED., CAN/CSA-C22.2 NO. 60079-11.14, 2ND EDITION, AND CAN/CSA C22.2 NO.142-M1987(REAFFIRMED 2014).
18. UL LOGO DISPLAYED:



19. CONTROL DRAWING 228180006 SHIPPED WITH PRODUCT WILL HAVE DEDICATED PAGE REPRODUCING ALL ABOVE INFORMATION AND THE NOTE:

ONLY THIS PAGE REPRESENTS UL CONTROL DRAWING FOR THE UNITED STATES AND CANADA. ADDITIONAL PAGES OF THIS DOCUMENT REPRESENT SIMILAR INFORMATION FOR ALTERNATE COUNTRIES OR CERTIFICATIONS.

20. WARNING:
ASSOCIATED APPARATUS NON HAZARDOUS LOCATION PROVIDES INTRINSICALLY SAFE CIRCUITS FOR SENSORS LOCATED IN CLASS I, DIV. 1, GROUP D HAZARDOUS LOCATIONS WHEN INSTALLED PER CONTROL DRAWING 228180006, SEE INSTALLATION INSTRUCTIONS.

APPAREILLAGE ASSOCIÉ ZONE NON DANGEREUSE
FOURNIR DES CIRCUITS À SÉCURITÉ INTRINSÈQUE POUR LES CAPTEURS SITUÉS DANS LA CLASSE I, DIV.1 GROUPE D, ENDROITS DANGEREUX, LORSQU' INSTALLÉ SELON LE SCHÉMA N ° 228180006. VOIR LES INSTRUCTIONS D'INSTALLATION.

21. WARNING:
THIS UNIT HAS MORE THAN ONE POWER SUPPLY CONNECTION POINT. DISCONNECT ALL POWER SUPPLIES BEFORE SERVICING.

CETTE UNITÉ A PLUS D'UN POINT DE D'ALIMENTATION.
DÉBRANCHEZ TOUTES LES ALIMENTATIONS ÉLECTRIQUES AVANT L'ENTRETIEN.

22. WARNING:
SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY. TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

AVERTISSEMENT: LA SUBSTITUTION DES COMPOSANTS PEUT NUIRE À LA SÉCURITÉ INTRINSÈQUE". POUR ÉVITER L'IGNITION DE MATIÈRES INFLAMMABLES OU COMBUSTIBLES, DÉBRANCHER L'ALIMENTATION AVANT L'ENTRETIEN.

23. THE ASSOCIATED APPARATUS MAY ALSO BE CONNECTED TO SIMPLE APPARATUS AS DEFINED IN ARTICLE 504.2 AND INSTALLED AND TEMPERATURE CLASSIFIED IN ACCORDANCE WITH ARTICLE 504.10(B) OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70), OR OTHER LOCAL CODES, AS APPLICABLE.

EX CERTIFIED PRODUCT

-RELATED DOCUMENT-

NO MODIFICATIONS PERMITTED
WITHOUT APPROVAL FROM THE
AUTHORIZED PERSON

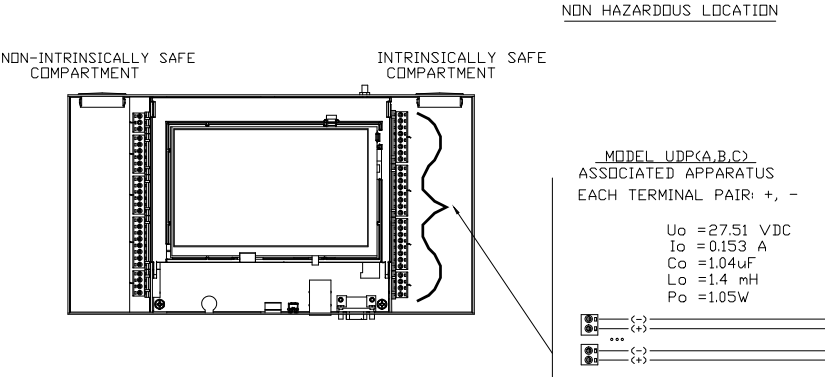
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES	
DECIMALS: .XX ± .01	XXX ± .005
ANGULAR: ± 0°30'	THIRD ANGLE
FRACTIONAL: ± 1/64	DATE 10/10/17
DRAWN BY K. Kelly	CHECKED
APPR	APPR

Franklin Fueling Systems	
TITLE	
CONTROL DRAWING EVO (UL)	
SIZE D	DWG NO. 228180006
DO NOT SCALE DRAWING	REV 2
SCALE: NONE	SHEET 1 OF 2

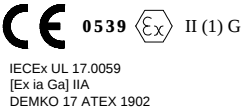
THE INFORMATION CONTAINED IS THE PROPRIETARY PROPERTY OF FRANKLIN FUELING SYSTEMS, AND IS NOT TO BE COPIED, USED OR DISCLOSED WITHOUT THE PERMISSION OF FRANKLIN FUELING SYSTEMS.

NOTES:

1. THE MODEL UDP(A-F), ANA(A,B,C), 485(D,E,F) SHALL NOT BE CONNECTED TO ANY EQUIPMENT WHICH USES OR GENERATES GREATER THAN 250V.
2. EACH GROUND TERMINAL SHALL BE CONNECTED TO A SUITABLE SYSTEM EARTH GROUND. THE DC RESISTANCE BETWEEN GROUND TERMINALS AND EARTH GROUND SHALL BE LESS THAN 1 OHM.
3. CAPACITANCE AND INDUCTANCE OF THE FIELD WIRING FROM THE INTRINSICALLY SAFE EQUIPMENT TO THE BARRIER SHALL BE CALCULATED AND MUST BE INCLUDED IN THE SYSTEM CALCULATIONS AS SHOWN IN THE DIAGRAM TO THE RIGHT. CABLE CAPACITANCE (Ccable) PLUS INTRINSICALLY SAFE EQUIPMENT CAPACITANCE (Ci) MUST BE LESS THAN THE MARKED CAPACITANCE(Co) SHOWN ON ANY BARRIER USED. THE SAME APPLIES FOR INDUCTANCE (Li, Lcable AND Lo, RESPECTIVELY). WHERE THE CABLE CAPACITANCE AND INDUCTANCE PER FOOT ARE NOT KNOWN, THE FOLLOWING VALUES SHALL BE USED: Cc=60pF/ft,(200pF/m), Lc=0.2uH/ft (0.7uH/m).
4. WIRING, CABLING AND SEALS MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE NATIONAL OR LOCAL CODES.
5. SEE INSTALLATION MANUAL FOR MORE DETAIL.
6. THE ENTITY CONCEPT ALLOWS THE USER TO IDENTIFY ACCEPTABLE COMBINATIONS OF INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS THAT HAVE NOT BEEN EXAMINED AS A SYSTEM. EACH APPARATUS IS EXAMINED SEPARATELY BY AN ATEX NOTIFIED BODY AND ASSIGNED A SET OF PARAMETERS CALLED ENTITY PARAMETERS. THE ENTITY PARAMETERS FOR UDP(A-F), ANA(A,B,C), 485(D,E,F) (ASSOCIATED APPARATUS) CAN BE FOUND IN THE DIAGRAM TO THE RIGHT. TO DETERMINE THE Ui, ii, Ci, Li, AND Pi VALUES THE CONTROL DRAWING FOR THE INTRINSICALLY SAFE APPARATUS SHALL BE USED. THE COMBINATION OF THE INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS MUST COMPLY WITH THE FOLLOWING:
- $U_o \leq U_i$
 $I_o \leq I_i$
 $P_o \leq P_i$
 $C_o \geq C_i + C_{cable}$ (SEE NOTE 3)
 $L_o \geq L_i + L_{cable}$ (SEE NOTE 3)
7. THE OUTPUT CURRENT OF THIS ASSOCIATED APPARATUS IS LIMITED BY A RESISTOR SUCH THAT THE OUTPUT VOLTAGE-CURRENT PLOT IS A STRAIGHT LINE DRAWN BETWEEN OPEN-CIRCUIT VOLTAGE AND SHORT-CIRCUIT CURRENT.
8. ASSOCIATED APPARATUS MUST BE INSTALLED IN AN ENCLOSURE SUITABLE FOR THE APPLICATION IN ACCORDANCE WITH THE NATIONAL AND LOCAL CODES, AS APPLICABLE.
9. INTRINSICALLY SAFE CIRCUITS MUST BE WIRED AND SEPARATED IN ACCORDANCE WITH NATIONAL AND LOCAL CODES, AS APPLICABLE.
10. THIS ASSOCIATED APPARATUS HAS NOT BEEN EVALUATED FOR USE IN COMBINATION WITH ANOTHER ASSOCIATED APPARATUS.



11. ATEX/IECEx APPROVAL DISPLAYED:



12. ALL OF THE ABOVE INFORMATION CAN BE COMBINED INTO A CONTROL DRAWING WITH OTHER CERTIFICATIONS OR IN THE INSTALLATION INSTRUCTIONS. IN ANY CASE, ALL INFORMATION ON THIS DRAWING MUST BE SHIPPED WITH EACH PRODUCT.
13. THE ASSOCIATED APPARATUS MAY ALSO BE CONNECTED TO SIMPLE APPARATUS AS DEFINED IN ARTICLE 504.2 AND INSTALLED AND TEMPERATURE CLASSIFIED IN ACCORDANCE WITH ARTICLE 504.10(B) OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70), OR OTHER LOCAL CODES, AS APPLICABLE.

EX CERTIFIED PRODUCT

~RELATED DOCUMENT~

NO MODIFICATIONS PERMITTED WITHOUT APPROVAL FROM THE AUTHORIZED PERSON

THE INFORMATION CONTAINED IS THE PROPRIETARY PROPERTY OF FRANKLIN FUELING SYSTEMS AND IS NOT TO BE COPIED, USED OR DISCLOSED WITHOUT THE PERMISSION OF FRANKLIN FUELING SYSTEMS

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
2	SEE PAGE 1	-	-

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES		TITLE	
DECIMALS: .XX ± .01	JOINTS ± .005	CONTROL DRAWING EVO (ATEX/IECEx)	
ANGULAR: ± 0°30'	FRACTIONAL: ± 1/64	THIRD ANGLE	
DATE	CHECKED	SIZE	DO NOT SCALE
10/10/17	M. Kelly	D	DWG NO.
APPR			228180006
APPR			REV 2
SCALE NONE		SHEET 2 OF 2	



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx UL 17.0059	Page 1 of 4	<u>Certificate history:</u> Issue 0 (2017-09-29)
Status:	Current	Issue No: 1	
Date of Issue:	2020-01-07		
Applicant:	Franklin Fueling Systems/Intelligent Controls Inc. 34 Spring Hill Road PO Box 638 Saco, ME 04072 United States of America		
Equipment:	Automatic Tank Gauge - Models UDP, ANA, and 485		
Optional accessory:			
Type of Protection:	Intrinsic Safety "ia"		
Marking:	[Ex ia Ga] IIA -20°C ≤ Tamb ≤ +40°C		

Approved for issue on behalf of the IECEx
Certification Body:

Katy A. Holdredge

Position:

Senior Staff Engineer

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

UL LLC
333 Pfingsten Road
Northbrook IL 60062-2096
United States of America





IECEx Certificate of Conformity

Certificate No.: **IECEx UL 17.0059**

Page 2 of 4

Date of issue: 2020-01-07

Issue No: 1

Manufacturer: **Franklin Fueling Systems/Intelligent Controls Inc.**
34 Spring Hill Road
PO Box 638
Saco, ME 04072
United States of America

Manufacturing locations: **Franklin Fueling Systems Inc.**
3760 Marsh Road
Madison, WI 53718
United States of America

Motores Electricos Sumergibles de Mexico S De RL De CV
Calle De los lagos 1085
Parque Industrial Acueducto 2A ETAP
67193 Guadalupe
Nuevo Leon, MEXICO
Mexico

Franklin Electric (Suzhou) Co., Ltd.
No 200 Su Hong Zhong Road, Export
Processing Zone, Suzhou Industrial
Park, P.R.C. 215021
China

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2011](#) Explosive atmospheres - Part 0: General requirements
Edition:6.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[US/UL/ExTR17.0067/00](#)

Quality Assessment Reports:

[US/UL/QAR10.0003/07](#)

[US/UL/QAR17.0014/01](#)

[US/UL/QAR17.0018/01](#)



IECEx Certificate of Conformity

Certificate No.: **IECEx UL 17.0059**

Page 3 of 4

Date of issue: 2020-01-07

Issue No: 1

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Models UDP, ANA, and 485 are permanently mounted associated apparatus that provide intrinsically safe circuits for use in Group IIA. The units are designed to be mounted indoors in a non-hazardous location and connected to up to fourteen suitably rated intrinsically safe apparatus.

These devices are control panels with or without a touch screen. Peripheral equipment may be connected to the external ports of the device (e.g., USB, RS-232, Ethernet), in the non-hazardous area. The enclosure contains two field wiring compartments, one for intrinsically safe wiring, and one for non-hazardous wiring (e.g. input power and relay outputs).

Please see Annex for additional information.

SPECIFIC CONDITIONS OF USE: NO



IECEx Certificate of Conformity

Certificate No.: **IECEx UL 17.0059**

Page 4 of 4

Date of issue: 2020-01-07

Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1: Removed QAR for Saco, ME (US/UL/QAR06.0007/08) since it is now covered under US/UL/QAR10.0003. Added QAR for Suzhou, China (US/UL/QAR17.0018/01). No update to ExTR for this revision.

Annex:

[Annex to IECEx UL 17.0059 Issue 1.pdf](#)



IECEx Certificate of Conformity

Certificate No.:

IECEx UL 17.0059

Issue No.: 1

Page 1 of 2

TYPE DESIGNATION

XXX Y ZZ D W
1 2 3 4 5

1	Base Model Number	UDP(A, B, C)	UDP(D, E, F)	ANA(A, B, C)	485(D, E, F)
2	Y – Number of relays on Main PCB	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays
3	ZZ – Number of I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	4 - 4 I.S. Output Pairs 8 - 8 I.S. Output Pairs	2 - 2 I.S. Output Pairs 4 - 4 I.S. Output Pairs
4	D – Display Option	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD
5	W – Wireless Option	W – With wireless communications	W – With wireless communications	W – With wireless communications	W – With wireless communications

PARAMETERS RELATING TO THE SAFETY

Input=XXX Main PCB=(Y)	UDP (A, B, C)	UDP (D, E, F)	ANA (A, B, C)	485 (D, E, F)
U _o , V	27.51	10.5	27.51	10.71
I _o , A	0.153	0.156	0.099	0.563
L _o , mH	1.4	1.4	1.4	0.5
C _o , uF	1.04	1.04	1.04	6.3
P _o , W	1.05	0.41	0.68	1.22



IECEx Certificate of Conformity

Certificate No.:

IECEx UL 17.0059

Issue No.: 1

Page 2 of 2

MARKING

Item	Description	Example																														
1	Identification of the apparatus, including manufacturer's name or trademark.	 Franklin Fueling Systems Or 																														
2	Manufacturer Address	INTELLIGENT CONTROLS, INC./ FRANKLIN FUELING SYSTEMS PO Box 638, SACO, MAINE 04072, USA																														
3	Model Designation	<table><tr><th colspan="5">Model: XXXYZZDW</th></tr><tr><th>Model Number</th><th>UDP(24V)</th><th>UDP(9V)</th><th>ANA</th><th>485</th></tr><tr><td>Y – Number of relays on Main PCB</td><td>A - 4 relays B - 2 relays C - 0 relays</td><td>D - 4 relays E - 2 relays F - 0 relays</td><td>A - 4 relays B - 2 relays C - 0 relays</td><td>D - 4 relays E - 2 relays F - 0 relays</td></tr><tr><td>ZZ – Number of I.S. Output Pairs</td><td>6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs</td><td>6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs</td><td>4 - 4 I.S. Output Pairs 8 - 8 I.S. Output Pairs</td><td>2 - 2 I.S. Output Pairs 4 - 4 I.S. Output Pairs</td></tr><tr><td>D – Display Option</td><td colspan="4">D – With LCD, (Blank) – Without LCD</td></tr><tr><td>W – Wireless Option</td><td colspan="4">W – With wireless communications</td></tr></table>	Model: XXXYZZDW					Model Number	UDP(24V)	UDP(9V)	ANA	485	Y – Number of relays on Main PCB	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays	ZZ – Number of I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	4 - 4 I.S. Output Pairs 8 - 8 I.S. Output Pairs	2 - 2 I.S. Output Pairs 4 - 4 I.S. Output Pairs	D – Display Option	D – With LCD, (Blank) – Without LCD				W – Wireless Option	W – With wireless communications			
Model: XXXYZZDW																																
Model Number	UDP(24V)	UDP(9V)	ANA	485																												
Y – Number of relays on Main PCB	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays																												
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D – Display Option	D – With LCD, (Blank) – Without LCD																															
W – Wireless Option	W – With wireless communications																															
4	Serial number	S/N nnnnnnnn																														
5	Operational Voltage	110-240 V~, 50/60 Hz, 1.0A																														
6	Entity Parameters	<table><tr><th>Input=XXX Main PCB=(Y)</th><th>UDP (A, B, C)</th><th>UDP (D, E, F)</th><th>ANA (A, B, C)</th><th>485 (D, E, F)</th></tr><tr><td>U_o, V</td><td>27.51</td><td>10.5</td><td>27.51</td><td>10.71</td></tr><tr><td>I_o, A</td><td>0.153</td><td>0.156</td><td>0.099</td><td>0.563</td></tr><tr><td>L_o, mH</td><td>1.4</td><td>1.4</td><td>1.4</td><td>0.5</td></tr><tr><td>C_o, uF</td><td>1.04</td><td>1.04</td><td>1.04</td><td>6.3</td></tr><tr><td>P_o, W</td><td>1.05</td><td>0.41</td><td>0.68</td><td>1.22</td></tr></table>	Input=XXX Main PCB=(Y)	UDP (A, B, C)	UDP (D, E, F)	ANA (A, B, C)	485 (D, E, F)	U _o , V	27.51	10.5	27.51	10.71	I _o , A	0.153	0.156	0.099	0.563	L _o , mH	1.4	1.4	1.4	0.5	C _o , uF	1.04	1.04	1.04	6.3	P _o , W	1.05	0.41	0.68	1.22
Input=XXX Main PCB=(Y)	UDP (A, B, C)	UDP (D, E, F)	ANA (A, B, C)	485 (D, E, F)																												
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C _o , uF	1.04	1.04	1.04	6.3																												
P _o , W	1.05	0.41	0.68	1.22																												
7	High Voltage Warning Symbol																															
8	Maximum RMS AC or DC voltage	Um = 250V																														
9	IECEx Marking	IECEx UL 17.0059 [Ex ia Ga] IIA																														
10	Terminal marking	1. For Model 485: "Intrinsic Safe Outputs" or "Intrinsically Safe Outputs" and "CHANNEL X" above each I.S. terminal channel marked "+", "A", "B" and "GND" (from left to right), where X may be from 1-4 or fewer (see Model Designation section above). 2. For all other models: "Intrinsic Safe Outputs" or "Intrinsically Safe Outputs" and "INPUT X" above each I.S. terminal pair marked "+" and "-" (from left to right), where X may be from 1-14 or fewer (see Model Designation section above).																														

NOTES:

- 1) Label shipped with product must have all of the above information, the style of which may be different.
- 2) This information may be printed on more than one label and have additional items related to other agency approvals but should be applied to an outside surface of the product and visible when installed. Entity parameters and Terminal Marking may be located inside near correspondent terminal blocks.

Ex Certified Product

~ Schedule Document ~

No modifications permitted without approval from the appropriate certification bodies



Department of Environmental Protection

2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form: 62-761.900(9)

Form Title: Storage Tank Equipment

Registration Form

Effective Date: July 2019

Incorporated in Rule 62-761.850, F.A.C.

Storage Tank System Equipment Registration Form

Fill out completely

General Information

Company Name: Franklin Electric - Fueling Systems

Contact Name: Brad Fawcett / Jason Garrett

Company Address: 3760 Marsh Road

City, State: Madison, WI Zip: 53718

E-mail: bradley.fawcett@fele.com

Contact Number: 608-838-5650

Product Name: EVO Series ATG

Model Number(s): EVO200, EVO400

Product Type: Automatic Tank Gauging System

Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST),
62-761.600, 62-7612.601 F.A.C.

F.A.C.: Write a brief description of equipment registration request including product limitations:

EVO™ 200 & EVO™ 400 Automatic Tank Gauges (ATGs) provide highly accurate inventory management and containment monitoring for small to mid-size fuel systems. Both ATGs feature the capability to interface with probes and sensors in any combination up to 6 (EVO™ 200) or 14 (EVO™ 400).

Information Checklist (Choose Yes, No, or N/A - Not Applicable):

1. Third-party Certification by a Nationally Recognized Testing Laboratory? (Required) ☒
2. Documentation of third-party evaluation that the equipment meets DEP Rules? ☒
3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory? ☒
4. Technical information and drawings included? ☒
5. Installation instructions included? ☒
6. Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)? ☒
7. Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)? ☒
8. Compatible with fuel blends containing >10% ethanol or >20% biodiesel? ☒
9. Has the product been approved or registered in other countries or states? (If so provide list) ☒
10. Any requirements for company-certified installers or trainers? ☒
11. Was this product(s) previously approved or registered by the Department? If yes, EQ- 890 ☒
12. Any changes or modifications to the equipment since the last submittal to DEP? ☐

Yes	No	N/A
☒	☐	☐
☒	☐	☐
☒	☐	☐
☒	☐	☐
☒	☐	☐
☒	☐	☐
☒	☐	☐
☒	☐	☐
☒	☐	☐
☒	☐	☐
☐	☒	☐

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Tanknotify@floridadep.gov, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399.

Write a brief description of equipment installation and performance in the U.S.:

Installation and programming of the EVO™ 200 & EVO™ 400 ATGs requires a Franklin Fueling Systems certified technician and should be performed in accordance with any local, state, or federal regulations. The ATGs should be mounted in a location that is classified as non-hazardous and at a level for convenient access. Once installed and programmed the system will monitor and report on configured devices, providing details and reports regarding the status of those configured device. Training specific to EVO200/EVO400 available at: <https://university.ffspro.com/en/online-training/>

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

Brad Fawcett, Product Certification Engineer

Printed Name and Title

Fawcett, Bradley

Signature (right click to sign)

Digitally signed by Fawcett, Bradley
Date: 2022.12.22 10:56:32 -06'00'

12/22/2022

Date

For Department Use Only:

Date Application Received: 02/15/2023

Application complete:

Yes: ☒ No: ☐

EQ- 890

Date of complete or incomplete letter sent: 02/28/2023

Date Equipment Requires Renewal: 2/28/2028

Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-761.850(2), F.A.C.

CERTIFICATE OF COMPLIANCE

Certificate Number 20170929-MH16589
Report Reference MH16589-20170731
Issue Date 2017-September-29

Issued to: INTELLIGENT CONTROLS INC
34 SPRING HILL RD
PO BOX 638
SACO ME 04072-0638

This is to certify that
representative samples of

CONTROL, MONITORING AND AUXILIARY EQUIPMENT
See Addendum.

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety:

Standard No. UL 913, Intrinsically Safe Apparatus and
Associated Apparatus for Use in Class I, II, and III, Division
1, Hazardous (Classified) Locations,
Standard No. CAN/CSA C22.2 No. 60079-0:15, "Explosive
atmospheres — Part 0: Equipment — General
requirements",
Standard No. CAN/CSA C22.2 No. 60079-11:14, "Explosive
atmospheres — Part 11: Equipment protection by intrinsic
safety "i",
Standard No. UL 1238, Standard for Control Equipment for
Use with Flammable Liquid Dispensing Devices,
Standard No. CAN/CSA C22.2 No. 142, Process Control
Equipment

Additional Information:

See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please
contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



CERTIFICATE OF COMPLIANCE

Certificate Number 20170929-MH16589
Report Reference MH16589-20170731
Issue Date 2017-September-29

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

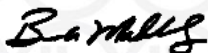
Associated Apparatus for use in Unclassified Locations.

Model UDP, followed by A, B, C, D, E, or F followed by 6 or 14, may be followed by D, may be followed by W, provides intrinsically safe outputs for use in Class I, Div. 1, Group D Hazardous Locations when installed in accordance with manufacturer's Control Drawing no. 228180006.

Model ANA, followed by A, B, or C, followed by 4, or 8, may be followed by D, may be followed by W, provides intrinsically safe outputs for use in Class I, Div. 1, Group D Hazardous Locations when installed in accordance with manufacturer's Control Drawing no. 228180006.

Model 485, followed by D, E, or F, followed by 2, or 4, may be followed by D, may be followed by W, provides intrinsically safe outputs for use in Class I, Div. 1, Group D Hazardous Locations when installed in accordance with manufacturer's Control Drawing no. 228180006.

I



Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



EU-TYPE EXAMINATION CERTIFICATE



Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

EU-Type Examination Certificate Number: **DEMKO 17 ATEX 1902 Rev. 0**

Product: **Automatic Tank Gauge System, Model UDP, ANA, or 485 followed YZZDW**

Manufacturer: **Franklin Fueling Systems Inc./Intelligent Controls**

Address: **34 Spring Hill Road, PO Box 638, Saco, ME 04072 USA**

This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no. **4787742355**

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012+A11:2013

EN 60079-11:2012

If the sign "X" is placed after the certificate number, it indicates that the product is subject to special conditions for safe use specified in the schedule to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

The marking of the product shall include the following:

II (1) G [Ex ia Ga] IIA

Certification Manager

Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2017-09-29

Notified Body

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com



[13]

[14]

Schedule

EU-TYPE EXAMINATION CERTIFICATE No.

DEMKO 17 ATEX 1902 Rev. 0

[15]

Description of Product

These automatic tank gauges (ATG) have control panels with or without a touch screen, and are to be mounted only in a non-hazardous area. A computer or peripherals may be connected to the external Class 2 ports of the device (e.g., USB, RS-232, Ethernet), in the non-hazardous area.

Nomenclature

The nomenclatures for the ATG models are as follows:

XXX Y ZZ D W
1 2 3 4 5

1	Base Model Number	UDP(A, B, C)	UDP(D, E, F)	ANA(A, B, C)	485(D, E, F)
2	Y – Number of relays on Main PCB	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays
3	ZZ – Number of I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	4 - 4 I.S. Output Pairs 8 - 8 I.S. Output Pairs	2 - 2 I.S. Output Pairs 4 - 4 I.S. Output Pairs
4	D – Display Option	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD
5	W – Wireless Option	W – With wireless communications	W – With wireless communications	W – With wireless communications	W – With wireless communications

Temperature range

The ambient temperature range is -20 °C to +40 °C.

Electrical data

Input=XXX Main PCB=(Y)	UDP (A, B, C)	UDP (D, E, F)	ANA (A, B, C)	485 (D, E, F)
U _o , V	27.51	10.5	27.51	10.71
I _o , A	0.153	0.156	0.099	0.563
L _o , mH	1.4	1.4	1.4	0.5
C _o , uF	1.04	1.04	1.04	6.3
P _o , W	1.05	0.41	0.68	1.22

[16]

Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. 8 on page 1 of this EU-Type Examination Certificate.

[17]

Specific conditions of use:

N/A

[18]

Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information

OR



The trademark label.

will be used as the company identifier on the marking

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

Accredited by DANAK under registration number 7011 to certification of products.



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx UL 17.0059

Issue No: 0

Certificate history:

[Issue No. 0 \(2017-09-29\)](#)

Status: **Current**

Page 1 of 3

Date of Issue: **2017-09-29**

Applicant: **Franklin Fueling Systems Inc./Intelligent Controls**
34 Spring Hill Road
PO Box 638
Saco, ME 04072
United States of America

Equipment: **Automatic Tank Gauge - Models UDP, ANA, and 485**

Optional accessory:

Type of Protection: **Intrinsic Safety "ia"**

Marking:

[Ex ia Ga] IIA

-20°C ≤ Tamb ≤ +40°C

*Approved for issue on behalf of the IECEx
Certification Body:*

Andrew Moffat

Position:

Associate Project Engineer

*Signature:
(for printed version)*

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](#).

Certificate issued by:

UL LLC
333 Pfingsten Road
Northbrook IL 60062-2096
United States of America





IECEx Certificate of Conformity

Certificate No: IECEx UL 17.0059

Issue No: 0

Date of Issue: 2017-09-29

Page 2 of 3

Manufacturer: **Franklin Fueling Systems Inc./Intelligent Controls**
34 Spring Hill Road
PO Box 638
Saco, ME 04072
United States of America

Additional Manufacturing location(s):

Franklin Fueling Systems Inc.
3760 Marsh Road
Madison, WI 53718
United States of America

Motores Electricos Sumergibles de Mexico S De RL De CV
Calle De los lagos 1085
Parque Industrial Acueducto 2A ETAPA
67193 Guadalupe
Nuevo Leon, MEXICO
Mexico

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[US/UL/ExTR17.0067/00](#)

Quality Assessment Report:

[US/UL/QAR06.0007/07](#)

[US/UL/QAR10.0003/05](#)

[US/UL/QAR17.0014/00](#)



IECEx Certificate of Conformity

Certificate No: IECEx UL 17.0059

Issue No: 0

Date of Issue: 2017-09-29

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Models UDP, ANA, and 485 are permanently mounted associated apparatus that provide intrinsically safe circuits for use in Group IIA. The units are designed to be mounted indoors in a non-hazardous location and connected to up to fourteen suitably rated intrinsically safe apparatus.

These devices are control panels with or without a touch screen. Peripheral equipment may be connected to the external ports of the device (e.g., USB, RS-232, Ethernet), in the non-hazardous area. The enclosure contains two field wiring compartments, one for intrinsically safe wiring, and one for non-hazardous wiring (e.g. input power and relay outputs).

Please see Annex for additional information.

SPECIFIC CONDITIONS OF USE: NO

Annex:

[Annex to IECEx UL 17.0059 Issue 0.pdf](#)



IECEX Certificate of Conformity

Certificate No.:

IECEX UL 17.0059

Issue No.: 0

Page 1 of 2

TYPE DESIGNATION

XXX Y ZZ D W
1 2 3 4 5

1	Base Model Number	UDP(A, B, C)	UDP(D, E, F)	ANA(A, B, C)	485(D, E, F)
2	Y – Number of relays on Main PCB	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays
3	ZZ – Number of I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	4 - 4 I.S. Output Pairs 8 - 8 I.S. Output Pairs	2 - 2 I.S. Output Pairs 4 - 4 I.S. Output Pairs
4	D – Display Option	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD
5	W – Wireless Option	W – With wireless communications	W – With wireless communications	W – With wireless communications	W – With wireless communications

PARAMETERS RELATING TO THE SAFETY

Input=XXX Main PCB=(Y)	UDP (A, B, C)	UDP (D, E, F)	ANA (A, B, C)	485 (D, E, F)
U _o , V	27.51	10.5	27.51	10.71
I _o , A	0.153	0.156	0.099	0.563
L _o , mH	1.4	1.4	1.4	0.5
C _o , uF	1.04	1.04	1.04	6.3
P _o , W	1.05	0.41	0.68	1.22



IECEx Certificate of Conformity

Certificate No.:

IECEx UL 17.0059

Issue No.: 0

Page 2 of 2

MARKING

Item	Description	Example																														
1	Identification of the apparatus, including manufacturer's name or trademark.	 Franklin Fueling Systems Or 																														
2	Manufacturer Address	INTELLIGENT CONTROLS, INC./ FRANKLIN FUELING SYSTEMS PO Box 638, SACO, MAINE 04072, USA																														
3	Model Designation	<table><tr><th colspan="5">Model: XXXYZZDW</th></tr><tr><th>Model Number</th><th>UDP(24V)</th><th>UDP(9V)</th><th>ANA</th><th>485</th></tr><tr><td>Y – Number of relays on Main PCB</td><td>A - 4 relays B - 2 relays C - 0 relays</td><td>D - 4 relays E - 2 relays F - 0 relays</td><td>A - 4 relays B - 2 relays C - 0 relays</td><td>D - 4 relays E - 2 relays F - 0 relays</td></tr><tr><td>ZZ – Number of I.S. Output Pairs</td><td>6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs</td><td>6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs</td><td>4 - 4 I.S. Output Pairs 8 - 8 I.S. Output Pairs</td><td>2 - 2 I.S. Output Pairs 4 - 4 I.S. Output Pairs</td></tr><tr><td>D – Display Option</td><td colspan="4">D – With LCD, (Blank) – Without LCD</td></tr><tr><td>W – Wireless Option</td><td colspan="4">W – With wireless communications</td></tr></table>	Model: XXXYZZDW					Model Number	UDP(24V)	UDP(9V)	ANA	485	Y – Number of relays on Main PCB	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays	ZZ – Number of I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	4 - 4 I.S. Output Pairs 8 - 8 I.S. Output Pairs	2 - 2 I.S. Output Pairs 4 - 4 I.S. Output Pairs	D – Display Option	D – With LCD, (Blank) – Without LCD				W – Wireless Option	W – With wireless communications			
Model: XXXYZZDW																																
Model Number	UDP(24V)	UDP(9V)	ANA	485																												
Y – Number of relays on Main PCB	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays																												
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D – Display Option	D – With LCD, (Blank) – Without LCD																															
W – Wireless Option	W – With wireless communications																															
4	Serial number	S/N nnnnnnnn																														
5	Operational Voltage	110-240 V~, 50/60 Hz, 1.0A																														
6	Entity Parameters	<table><tr><th>Input=XXX Main PCB=(Y)</th><th>UDP (A, B, C)</th><th>UDP (D, E, F)</th><th>ANA (A, B, C)</th><th>485 (D, E, F)</th></tr><tr><td>U_o, V</td><td>27.51</td><td>10.5</td><td>27.51</td><td>10.71</td></tr><tr><td>I_o, A</td><td>0.153</td><td>0.156</td><td>0.099</td><td>0.563</td></tr><tr><td>L_o, mH</td><td>1.4</td><td>1.4</td><td>1.4</td><td>0.5</td></tr><tr><td>C_o, uF</td><td>1.04</td><td>1.04</td><td>1.04</td><td>6.3</td></tr><tr><td>P_o, W</td><td>1.05</td><td>0.41</td><td>0.68</td><td>1.22</td></tr></table>	Input=XXX Main PCB=(Y)	UDP (A, B, C)	UDP (D, E, F)	ANA (A, B, C)	485 (D, E, F)	U _o , V	27.51	10.5	27.51	10.71	I _o , A	0.153	0.156	0.099	0.563	L _o , mH	1.4	1.4	1.4	0.5	C _o , uF	1.04	1.04	1.04	6.3	P _o , W	1.05	0.41	0.68	1.22
Input=XXX Main PCB=(Y)	UDP (A, B, C)	UDP (D, E, F)	ANA (A, B, C)	485 (D, E, F)																												
U _o , V	27.51	10.5	27.51	10.71																												
I _o , A	0.153	0.156	0.099	0.563																												
L _o , mH	1.4	1.4	1.4	0.5																												
C _o , uF	1.04	1.04	1.04	6.3																												
P _o , W	1.05	0.41	0.68	1.22																												
7	High Voltage Warning Symbol																															
8	Maximum RMS AC or DC voltage	U _m = 250V																														
9	IECEx Marking	IECEx UL 17.0059 [Ex ia Ga] IIA																														
10	Terminal marking	1. For Model 485: "Intrinsic Safe Outputs" or "Intrinsically Safe Outputs" and "CHANNEL X" above each I.S. terminal channel marked "+", "A", "B" and "GND" (from left to right), where X may be from 1-4 or fewer (see Model Designation section above). 2. For all other models: "Intrinsic Safe Outputs" or "Intrinsically Safe Outputs" and "INPUT X" above each I.S. terminal pair marked "+" and "-" (from left to right), where X may be from 1-14 or fewer (see Model Designation section above).																														

NOTES:

- 1) Label shipped with product must have all of the above information, the style of which may be different.
- 2) This information may be printed on more than one label and have additional items related to other agency approvals but should be applied to an outside surface of the product and visible when installed. Entity parameters and Terminal Marking may be located inside near correspondent terminal blocks.

Ex Certified Product

~ Schedule Document ~

No modifications permitted without approval from the appropriate certification bodies

Issue Date: August 7, 2017
Revision Date: September 30, 2020

Franklin Fueling Systems
Franklin Fueling Systems EVO 400, EVO 200, EVO 600, and EVO 6000 Consoles with
FMP-DDS-U Discriminating Dispenser Sump Sensor and FMP-DTS-U Discriminating Turbine
Sump Sensor

INTERSTITIAL DETECTOR (LIQUID-PHASE)

Detector:

Output Type: qualitative
Sampling Frequency: continuous
Operating principle: float switch

Test Results:

	unleaded gasoline	diesel*	E85	water/E85 20%/80% upper/lower	water/E85 80%/20% upper/lower	water/E85 30%/70% upper/lower
FMP-DDS/DDS						
Detection time (min)	6.5	54.3	7.7	6.0	16.2	5.8
Fall time (min)	<20	<60	<20	<20	<20	<20
Lower Detection Limit (in)	0.125	0.125	0.125	0.125	0.125	0.125
FMP-DDS						
Detection time (min)	<1					
Fall time (min)	<1					
Threshold Level						
Low level (in)	1.0759					
High level (in)	7.4706					
FMP-DTS						
Detection time (min)	<1					
Fall time (min)	<1					
Threshold Level (in)						
Low level (in)	1.0678					
High level (in)	10.9636					

Manufacturer and evaluator claim that sensors will respond to any liquid. Evaluations determined these sensors' responses to the liquids shown above. *Biodiesel blends B6-B20 meeting ASTM D7467 and biodiesel B100 meeting ASTM D6751 would also produce an alarm if the sensor threshold is exceeded. Responses to these fuels were not determined, but would be expected to be very similar to the diesel responses.

Comments:

Ken Wilcox Associates (KWA) has previously evaluated these sensors on one or more Franklin Fueling Systems ATG consoles. Results from the alarm functionality testing with the EVO600 and EVO6000 consoles have been combined with previously evaluated sensor threshold data performed by KWA. Sensors can be removed, cleaned and reinstalled if an alarm is triggered or if the sensor is periodically tested. . The DDS and DTS sensors contain an identical product sensitive strip that triggers a product alarm when exposed to any type of fuel. The top and bottom floats of both types of sensors detect the presence of liquid and an alarm will be generated if the liquid rises above the threshold of either float. When the product sensitive strip was tested in each of the three mixtures of water/E85, the DDS and DTS sensors went into alarm when subjected to the top and lower layers of water/E85. For the upper layer containing hydrocarbon, the DDS sensor indicated a product alarm as designed for each of the 20%, 30% and 70% of the water/E85 mixture. For the lower layer of each of the 20%, 30% and 70% of the water/E85 mixtures, the 20% mixture indicated a product alarm after a short period of time, while the 30% and 70% mixtures indicated a water alarm when the threshold of the bottom float was exceeded but did not detect the presence of product after a period of 24 hours.

Franklin Fueling Systems
3760 Marsh Road
Madison, WI 53718
Tel: (800) 225-9787
E-mail: info@franklinfueling.com
URL: www.franklinfueling.com

Evaluator: Ken Wilcox Associates
Tel: (816) 443-2494
Dates of Evaluations: 06/19/2017, 11/08/18



| [Home](#) | [Vendors: A - F](#) | [Vendors: G - M](#) | [Vendors: N - S](#) | [Vendors: T - Z](#) | [Method Index](#) | [Glossary](#) |

Appearance on this list is not to be construed as an endorsement by any regulatory agency nor is it any guarantee of the performance of the method or equipment. Equipment should be installed and operated in accordance with all applicable laws and regulations. For full details, please refer to our expanded "[DISCLAIMER](#)" page.



Franklin Electric

Internet link to the Franklin Fueling Systems, FFS PRO University, online training website.

<https://university.ffspro.com/en/online-training/>

Prerequisite training:

Fueling System Safety: <https://university.ffspro.com/en/onlinetraining/safety/fueling-system-safety/safety-training-test/>

Product Specific Training:

EVO200 and EVO400 Installation Training found at:
<https://university.ffspro.com/en/online-training/>

EVO™ 200 & EVO™ 400 AUTOMATIC TANK GAUGES

EVO™ 200 & EVO™ 400 Automatic Tank Gauges (ATGs) provide highly accurate inventory management and containment monitoring for small to mid-size fuel systems. With pre-configured hardware and customizable software options, these ATGs provide straightforward tank level monitoring and compliance. Their simple setup and operation, remote connectivity, and advanced security features protect your fuel system while keeping you directly connected to vital site data whenever, and wherever. The highly-intuitive, full-color, icon-based touch screen provides user-friendly on-site access to inventory, alarm, and compliance data.

TECHNICAL ADVANTAGES

- Provides inventory monitoring, static (included feature) and continuous tank testing (optional feature), tank autocalibration, inventory reconciliation, containment compliance monitoring, and flow rate monitoring.
- Both ATGs feature the capability to interface with probes and sensors in any combination up to 6 (EVO™ 200) or 14 (EVO™ 400).
- Customizable user roles and log-in security features protect against unwanted access while keeping track of user activity within your system.
- Streamlined setup and programming includes hardware auto-detection and wiring confirmation, multipoint tank charting, network printer auto-detection, and the ability to download and upload entire programming profiles from one ATG to another.
- Intuitive full-color 7" (17.78 cm) touch screen interface provides simplified on-site access features including:
 - Six available One Touch buttons that are custom programmed to carry out common automated tasks with a single tap.
 - Quick Jump menu allows you to quickly maneuver from application to application using a single button.
 - Programmable product colors.
- Available with optional 24-hour Statistical Continuous Automatic Leak Detection (SCALD) and Turbine Pump Interface (TPI) capability for enhanced and automated submersible turbine pump control.
- Web interface allows you to directly connect to your ATG via FFS PRO® Connect from any web-enabled device.
- Optional Wifi allows secure and protected on-site viewing of inventory levels for fuel delivery drivers.

Approvals/Certifications

- UL, cUL, ATEX, IECEx
- Third party certification of leak detection capabilities



SPECIFICATIONS

- Maximum tanks monitored: 6 (EVO™ 200)/14 (EVO™ 400)
- Maximum sensor input capacity: 6 (EVO™ 200)/14 (EVO™ 400)
- Total # of inputs: 6 (EVO™ 200)/14 (EVO™ 400)
- Dry contact input channels: 2
- Relay output channels: 2
- Connectivity: Ethernet, RS-232, RS-485, standard USB, mini USB, and Wifi (optional)
- Display type: 17.78 cm (17.78 cm) color LCD touch screen
- Printer type: External (network or USB)
- Alarm: Internal audible alarm
- LEDs: Alarm, warning, and power
- Tank chart correction points: 7,500
- Applicable liquids: Petroleum, chemicals, and waste
- Level units: Inches, centimeters, and millimeters
- Volume units: gallons or liters (mass with density option)
- Power requirements: 110 to 240 VAC, 50/60 hz, 2.6 Amps
- Operating temperature: 32° to 104°F (0° to 40°C)
- Humidity: 0-95% non-condensing
- Dimensions: Height: 8" (205 mm), Width: 13 3/4" (350 mm), Depth: 3 1/4" (83 mm)

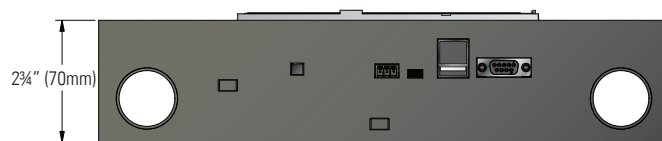
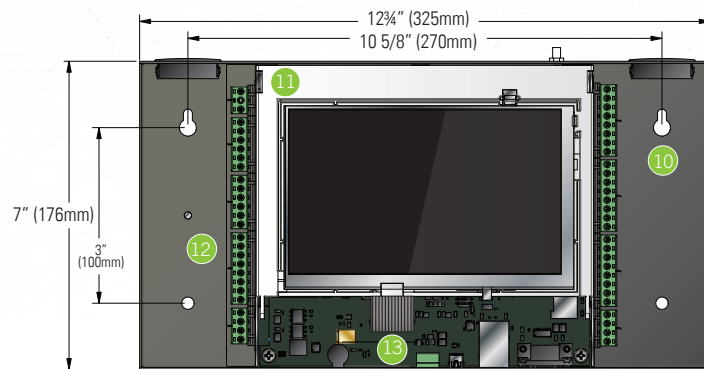
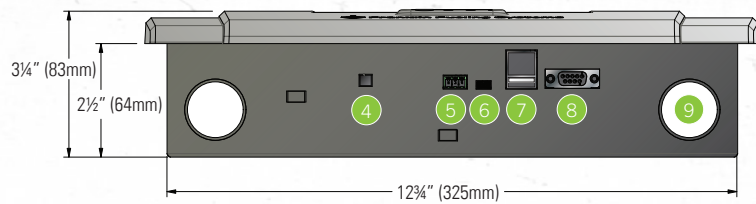
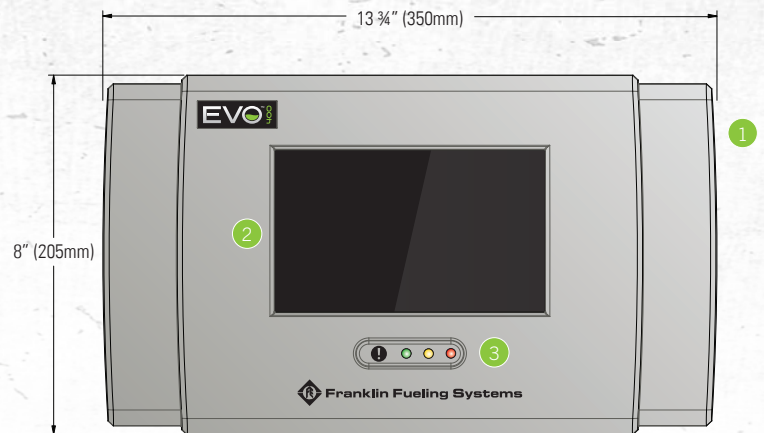
Capabilities

- High/low product, water, and temperature alarm set points
- Inventory reconciliation/tank autocalibration, flow rate monitoring (optional)
- Density, mass, and phase separation measurement
- Conditional programming
- Email and SMS notifications
- Back-up generator monitoring
- MODBUS™ support

SPECIFICATIONS CONTINUED

Components

- 1 Cover
- 2 LCD touch screen
- 3 LED indicators
- 4 Annunciator (audible alarm)
- 5 RS-485
- 6 Mini USB port
- 7 Ethernet / USB port
- 8 RS-232
- 9 Top and bottom knockouts
- 10 Mounting holes
- 11 Flip up panel (touch screen)
- 12 Termination blocks
- 13 Main board



ORDERING INFORMATION

Ordering Guide

ATG model, software and hardware options can be listed separately or combined when ordering. Systems shipped from the factory will list the combined part number. Complete part numbers have a specific order and are created using the following guidelines:

EVOX DW - TR

EVOX = Base Model Options

EVO200 = EVO™ 200 base model, up to 6 channels

EVO400 = EVO™ 400 base model, up to 14 channels

DW = Hardware Options (choose all that apply)

D = Display (color LCD touch screen)

W = WIFI

TRFC = Software Options (choose all that apply)

T = SCALD 24-hour tank testing

R = Reconciliation/autocalibration

F = Reconciliation/autocalibration and flow rate monitoring

C = Enhanced logic conditions including value, counter, value compare, and latch

Example: EVO400DW-TF = EVO™ 400 base model, up to 14 channels with display, with WIFI, with SCALD, and with reconciliation/autocalibration and flow rate monitoring.

EVO™ 200 & EVO™ 400 Base Models

Model	Description
EVO200	EVO™ 200 base model automatic tank gauge
EVO400	EVO™ 400 base model automatic tank gauge

EVO™ 200 & EVO™ Hardware & Software Field Upgrades

EVO™ 200 and EVO™ 400 ATGs come standard with the ability to perform in-tank static leak detection. The following software and hardware options can be added to customize your ATG once it's been installed in the field.

Internal Hardware Options

Model	Description
FMP-LCD	EVO™ 200 and EVO™ 400 LCD upgrade
FMP-WIFI	EVO™ 200 and EVO™ 400 WIFI upgrade
FMP-SOMW-U	Unregistered upgrade SOM with WIFI
FMP-SOMW-UR	Registered upgrade SOM with WIFI

Internal Software Options / Field Upgrades

Model	Description
TS-TT	(T) Statistical continuous automatic leak detection, 24 hour continuous tank testing software
TS-TRAC	(R) Tank inventory reconciliation and autocalibration
TS-TRAC-F	(F) Reconciliation/autocalibration and flow rate monitoring software
TS-FLOW	Flow rate monitoring software (Field upgrade for ATGs with reconciliation/autocalibration)
TS-CON	(C) DEF/AdBlue® recirculation, scheduling, and timer conditions

External Printer

Model	Description
FMP-ETP	External printer (EVO™ 200 and EVO™ 400, includes USB cable, power cord, one roll of thermal printer paper, and wall mount hardware)
FMP-EPPC	Case of 25 thermal printer paper rolls

Note: The external printer measures 142 mm X 132 mm X 204 mm (w x h x d) and can be mounted to wall next to the EVO™ Series ATG using the included hardware.

EVO™ 200 AND EVO™ 400 AUTOMATIC TANK GAUGES

INSTALLATION GUIDE



The information in this publication is provided for reference only. While every effort has been made to ensure the reliability and accuracy of the information contained in this manual at the time of printing, we recommend that you refer to "franklinfueling.com" for the most current version of this manual. All product specifications, as well as the information contained in this publication, are subject to change without notice. Franklin Fueling Systems does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of, or in any way connected with, installation, operation, use, or maintenance by using this manual. Franklin Fueling Systems assumes no responsibility for any infringement of patents or other rights of third parties that may result from use of this manual or the products. We make no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

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Introduction

This manual contains installation instructions for the Franklin Fueling Systems (FFS) EVO™ 200 and EVO™ 400 Automatic Tank Gauges (ATGs). You must follow all safety information, warnings, instructions, and other information in this manual. Please read this entire manual carefully. If you do not follow the instructions in this manual, the result could be faulty operation, equipment damage, injury, or death.

Questions and concerns

In case of emergency, follow the procedures established by your facility. If you have questions or concerns about safety or need assistance, use the information below to contact FFS:

Web: franklinfueling.com

Telephone:

USA and Canada: +1.608.838.8786, +1.800.225.9787

USA Technical Support: 1.800.984.6266

UK: +44 (0) 1473.243300

Mexico: 001.800.738.7610

China: +86.10.8565.4566

Germany: +49.6571.105.380

Conventions used in this manual

This manual includes safety precautions and other important information presented in the following format:

NOTE: This provides helpful supplementary information.

IMPORTANT: This provides instructions to avoid damaging hardware or a potential hazard to the environment, for example: fuel leakage from equipment that could harm the environment.

⚠ CAUTION: This indicates a potentially hazardous situation that could result in minor or moderate injury if not avoided. This may also be used to alert against unsafe practices.

⚠ WARNING: This indicates a potentially hazardous situation that could result in severe injury or death if not avoided.

⚠ DANGER: This indicates an imminently hazardous situation that will result in death if not avoided.

Operating precautions

FFS equipment is designed to be installed in areas where volatile liquids such as gasoline and diesel fuel are present. Working in such a hazardous environment presents a risk of severe injury or death if you do not follow standard industry practices and the instructions in this manual. Before you work with or install the equipment covered in this manual, or any related equipment, read this entire manual, particularly the following precautions:

IMPORTANT: To help prevent spillage from an underground storage tank, make sure the delivery equipment is well-maintained, that there is a proper connection, and that the fill adaptor is tight. Delivery personnel should inspect delivery elbows and hoses for damage and missing parts.

⚠ CAUTION: Use only original FFS parts. Substituting non-FFS parts could cause the device to fail, which could create a hazardous condition and/or harm the environment.

⚠ WARNING: Follow all codes that govern how you install and service this product and the entire system. Always lock out and tag electrical circuit breakers while installing or servicing this equipment and related equipment. A potentially lethal electrical shock hazard and the possibility of an explosion or fire from a spark can result if the electrical circuit breakers are accidentally turned on while you are installing or servicing this product. Refer to this manual (and documentation for related equipment) for complete installation and safety information.

⚠ WARNING: Before you enter a containment sump, check for the presence of hydrocarbon vapors. Inhaling these vapors can make you dizzy or unconscious, and if ignited, they can explode and cause serious injury or death. Containment sumps are designed to trap hazardous liquid spills and prevent environmental contamination, so they can accumulate dangerous amounts of hydrocarbon vapors. Check the atmosphere in the sump regularly while you are working in it. If vapors reach unsafe levels, exit the sump and ventilate it with fresh air before you resume working. Always have another person standing by for assistance.

⚠ WARNING: Follow all federal, state, and local laws governing the installation of this product and its associated systems. When no other regulations apply, follow NFPA codes 30, 30A, and 70 from the National Fire Protection Association. Failure to follow these codes could result in severe injury, death, serious property damage, and/or environmental contamination.

⚠ WARNING: Always secure the work area from moving vehicles. The equipment in this manual is usually mounted underground, so reduced visibility puts service personnel working on it in danger from moving vehicles that enter the work area. To help prevent this safety hazard, secure the area by using a service truck (or some other vehicle) to block access to the work area.

⚠ WARNING: All wiring must enter the console's enclosure through the designated knockouts. An explosion hazard may result if other openings are used. All wiring from probes to the console must be run in conduit separate from all other wiring. Failure to do so will create an explosion hazard.

⚠ DANGER: Make sure you check the installation location for potential ignition sources such as flames, sparks, radio waves, ionizing radiation, and ultrasound sonic waves. If you identify any potential ignition sources, you must make sure safety measure are implemented.

Programming and operation documentation

The *EVO™ 200 and EVO™ 400 Automatic Tank Gauges Operation Guide* and the *EVO™ 200 and EVO™ 400 Automatic Tank Gauges Programming Guide* are useful manuals you may need. To download these manuals, go to: [www.franklinfueling.com>Products>Fuel Management Systems>Automatic Tank Gauges>EVO™ 200 & EVO™ 400>Downloads>Manuals](http://www.franklinfueling.com/Products/Fuel%20Management%20Systems/Automatic%20Tank%20Gauges/EVO%20200%20&%20EVO%20400/Downloads/Manuals). Alternatively, you can click the following link, and go to the "Manuals" heading:

<http://www.franklinfueling.com/americas/fms/featured/27308/en/evo-200-evo-400#Downloads>

Certified installer or service person

The equipment described in this manual should be serviced only by an FFS-certified technician, installer, or service person. Only an FFS-certified technician, installer, or service person is allowed to access both the user interface keypad and internal areas of an EVO™ 200 or EVO™ 400 ATG.

Station owner or operator

Only the station owner or operator is allowed access to the user interface keypad. Access to internal areas of the EVO™ 200 or EVO™ 400 ATG console is strictly prohibited.

Abbreviations and acronyms

AST- Aboveground Storage Tank

ATG- Automatic Tank Gauge

FMS- Fuel Management Systems

IS- Intrinsically Safe

PC- Personal Computer

RLY- Relay Module

TPI- Turbine Pump Interface

UST- Underground Storage Tank

Product description

EVO™ 200 and EVO™ 400 ATGs are complete, automatic, continuous monitoring systems that:

- Perform inventory monitoring.
- Generate reports automatically in response to preset and programmed conditions and alarms.
- Provide audio-visual indications when an alarm or warning condition exists.
- Perform tank reconciliation and autocalibration.
- Print reports on an external USB printer.
- You can access remotely with Ethernet, USB, WiFi, or with a web browser.
- Perform leak detection and density monitoring.

Specifications

The specifications for an EVO™ 200 or EVO™ 400 ATG are:

- Line voltage: 110-240 V~, 1.0 A.
- Frequency and power: 50/60 Hz, 100 W maximum.
- Storage temperature: -20 to 60° C (-4 to 140° F).
- Operating temperature: 0 to 40° C (32 to 104° F).
- Operating humidity: 0 to 95%, non-condensing.
- Exterior cleaning: Cloth or sponge slightly dampened in mild detergent.
- Splash resistance: Not to be exposed to direct spray, splash or drips.
- Location: Indoors in a non-hazardous, pollution degree 2 environment per IEC60664.
- Relay rating: 2A @ 240V~.

Console Installation

Console location

Install the console indoors in an area that has a pollution degree 2 rating and is classified as non-hazardous (per IEC60664). Place the console at eye level, for convenience, on a level, vertical surface 2–6' (0.6–1.9 m) high. Use appropriate fasteners.

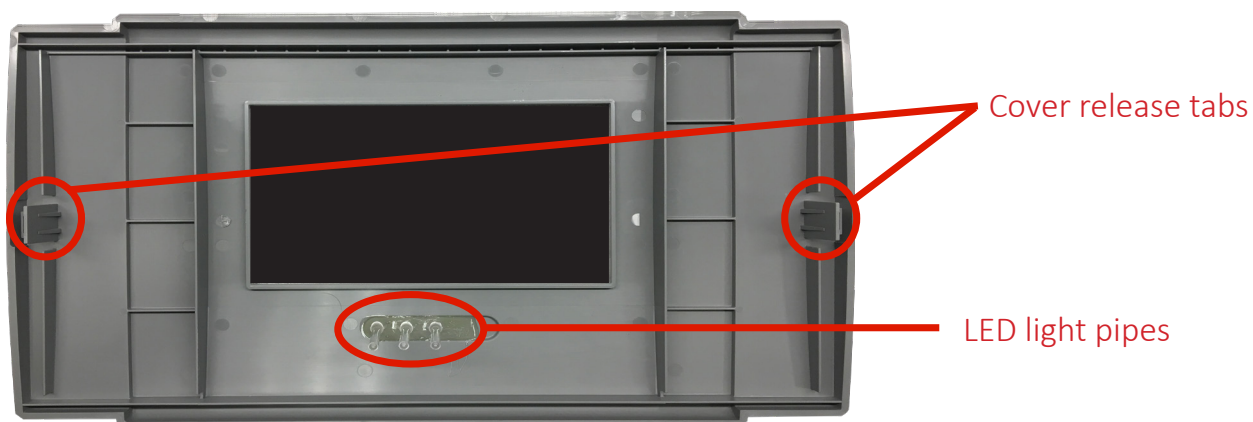
Mounting the console

Removing the cover

⚠ WARNING: Mount the console in a location where explosive or flammable vapors are not present. Otherwise, there is an explosion hazard that can result in property damage, environmental contamination, severe injury, and death.

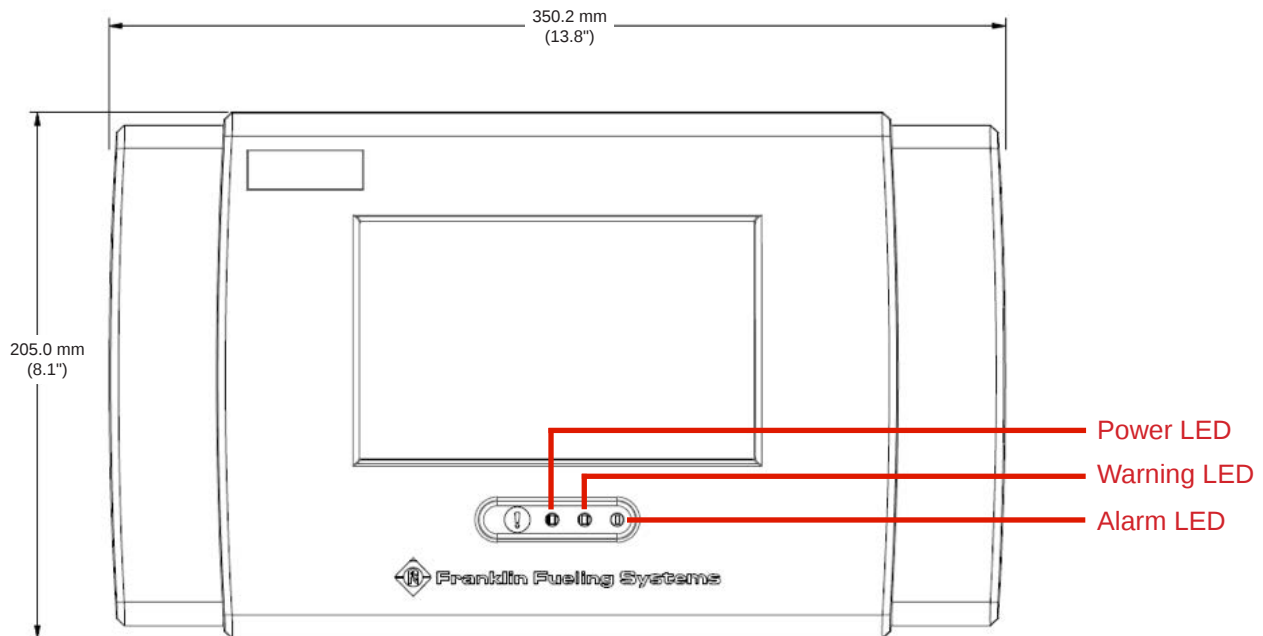
IMPORTANT: Leave at least 2" (50 mm) of open space around the console to allow for ventilation, communication port connections, conduit, and wiring. Allow at least 7" (175 mm) at the top if the unit has an antenna.

To remove the cover, press the cover release tabs in and lift the cover straight away from the unit with two hands. To reinstall the cover, place it straight on the unit to help avoid damaging the LED light pipes.

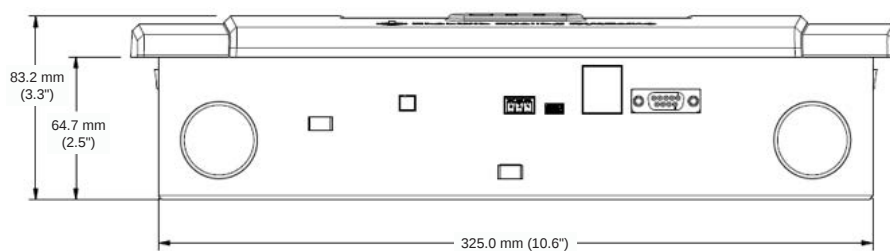
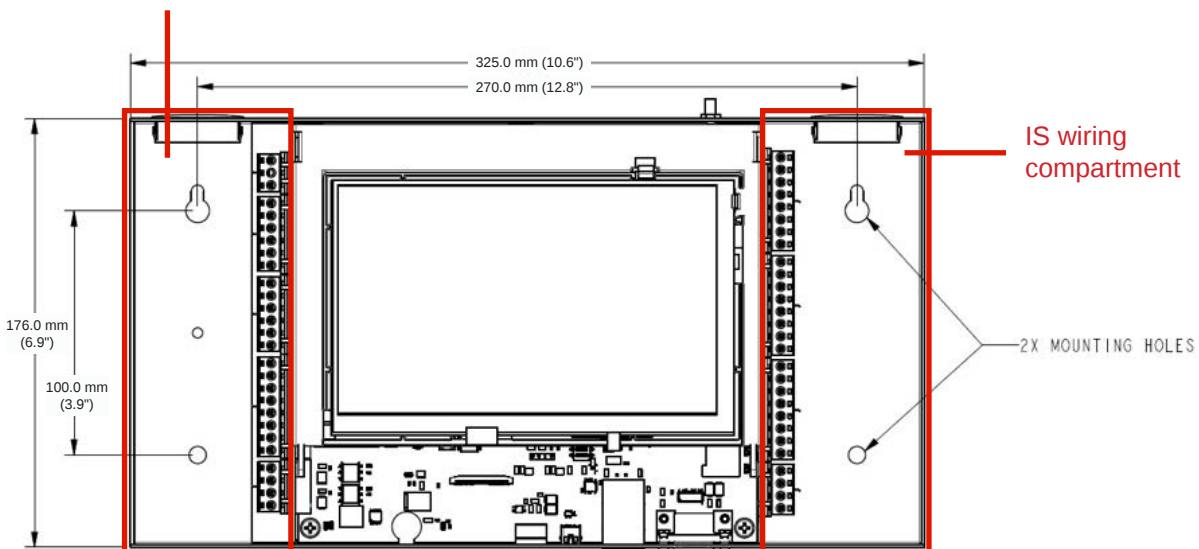


Two mounting screw holes are located on each side of the console housing. Use fasteners that have sufficient load carrying capacity and are appropriate for wall construction. Make sure that there is enough room around the console for conduit, communication port connections, probe wiring, and access.

Console dimensions



Non-IS wiring compartment



Standard installation materials

Select and install standard installation materials according to local, state, and federal codes that govern the installation of this product and its associated systems. See the console, module wiring, or associated devices section of this manual for details.

Circuit breaker

The electrical power panel must have a 20 Amp circuit breaker that provides power for only the console.

Weatherproof junction boxes

There must be a weatherproof junction box (16 inch³ (262.2 cm³) minimum), cover, and cover gasket for liquid level probe manholes. Also use 0.5" (12.7 mm) bushings for probe compression fittings. Use a weatherproof metal pull box for combining multiple circuits that run into the console through one or more conduits. Use a separate weatherproof metal pull box to combine intrinsically safe (IS) liquid level probe wiring. Do not run other non-intrinsically safe wiring into the IS pull box. Run 0.5" (12.7 mm) IS probe conduit from the manholes to the IS pull box, and then run one or two 0.5" (12.7 mm) conduits to the console's IS conduit knockouts.

Conduit

Entryways into the console are sized for 1" (25.4 mm) conduit. If you want to use smaller conduit, make sure you use the appropriate size reducing washers. Use conduit hardware that is appropriate for the installation and meets local, state, and federal requirements.

Splice connector kit warranty requirement

IMPORTANT: According to the FFS warranty, you must use splice connector kits.

Use the FFS-approved, moisture-resistant, no-strip splice connectors for liquid level probes. (Part number TSP-KW30 contains 30 FFS-approved connectors.)

Moisture-resistant splice connectors

Using moisture-resistant splice connectors will:

- Reduce or eliminate corrosion of the wire connections from repeated exposure to water condensation, which causes eventual signal loss and system failure.
- Reduce or eliminate equipment damage from water flooding around the connectors, which causes short-circuit damage.

Thread sealant (UL classified)

Use a non-hardening, stay-soft, gasoline compatible, thread sealant to seal and waterproof all tank riser pipe threads. Also, the thread sealant (or pipe dope, as it is commonly known) should also be chemically non-reactive to the product in the tank(s). Apply thread sealant to seal and waterproof all outdoor electrical conduit fitting threads, including the hole plugs at the weatherproof junction boxes.

Riser pipes

ANSI Schedule 40- (or chemically non-reactive) 2 or 4 inch (50.8 or 101.6 mm) (8 NPT) riser pipes for liquid level probes.

Cables required for liquid level probes and FMP-XXX-U sensors

Use cables and wires compliant with national and local codes. FFS recommends using the types of cable shown below up to the recommended length.

IMPORTANT: Conductors of different IS circuits that are run together in the same conduit should have at least 0.01" (0.25 mm) of insulation.

Belden™ Cable	Outer Diameter (OD)	Maximum Length	Capacitance (pF)	Inductance (μH)
87760	0.15" (3.81 mm)	260' (80 m)	<100 pF/ft (<330 pF/m)	<0.2 μH/ft (<0.7 μH/m)
87761*	0.12' (3.048 mm)	400' (120 m)	<60 pF/ft (<200 pF/ft)	<0.2 μH/ft (<0.7 μH/m)
89182*	0.31' (7.874 mm)	1500' (450 m)	<20 pF/ft (<65 pF/m)	<0.3 μH/ft (<1 μH/m)

* You can order this cable from FFS.

Cable or wire for FMP-ULS(UHS) sensors

You can use wire (type THHN, TFFN, or THWN, gas and oil resistant, 18 AWG minimum, 1500 feet maximum wire run length) when it is enclosed in rigid metal conduit from the sensor to the console.

When cable is not run through rigid metal conduit, you must use leak detection sensor cable. See the *Direct Burial Cable Installation Manual* (FFS part number 000-1041) for further information.

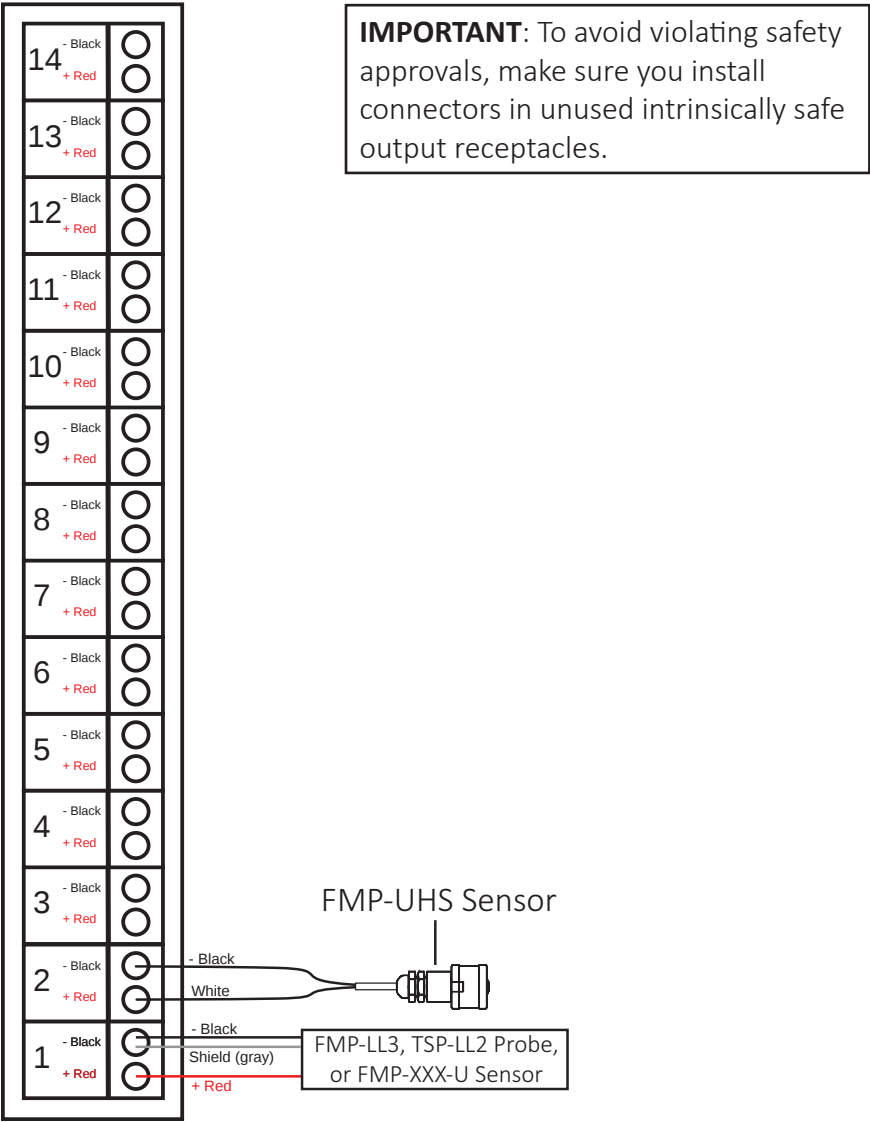
Cable or wire for console power

Wire required for the EVO™ 200 and EVO™ 400 ATG:

- Power: 3 conductor- 12 AWG to 14 AWG (1.5 mm² to 2.5 mm²); Black, white, and green.
- Safety ground- 1 conductor: 12 AWG green. (Two may be required in some locations.)
- Accessories: As required- Type THHN, TFFN, or THWN; 18 AWG minimum.

UDP probe and sensor wiring

The probe and sensor wiring is IS and is kept separate from all other wiring. Conduit must enter the console enclosure through only the designated knockouts. The installation may require the conduit to enter on top or bottom. Do not lose the conduit plugs, and make sure any openings are covered by the plugs. Attach the probe wiring as shown below:



IMPORTANT: To avoid violating safety approvals, make sure you install connectors in unused intrinsically safe output receptacles.

UDP 24 V Input Specifications (Motherboard A, B, C)	
Number of Channels:	14, 6
Safety rating:	Class I, Division 1, Group D, [Ex ia] IIA
Entity parameters:	Uo = 27.5 V Io = 0.153 A Co = 1.04 uF Lo = 1.4 mH Po = 1.05 W

Line power wiring

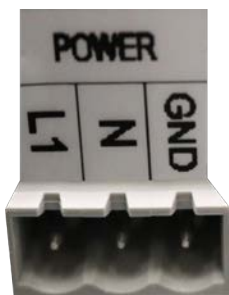
Non-intrinsically safe wiring

⚠ WARNING: Always lock out and tag electrical circuit breakers while installing or servicing this equipment and any related equipment. A potentially lethal electrical shock hazard and the possibility of an explosion or fire from a spark can result if the electrical circuit breakers are accidentally turned on during installation or servicing.

Console power supply

Power to the console must be 110-240 VAC, 50/60 Hz. At the electrical power panel, use a 20 amp circuit breaker that supplies power to only the console.

IMPORTANT: Do not connect other equipment to this circuit.



⚠ WARNING: The ground bus in the electrical panel must be connected to an earth ground as required by the National Electrical Code (or Canadian Electrical Code) when applicable. If the ground bus is not properly connected to an earth ground, or if the IS safety ground is not properly connected at the console, a dangerous condition will be created that could result in an explosion.

Check electrical resistance to earth ground

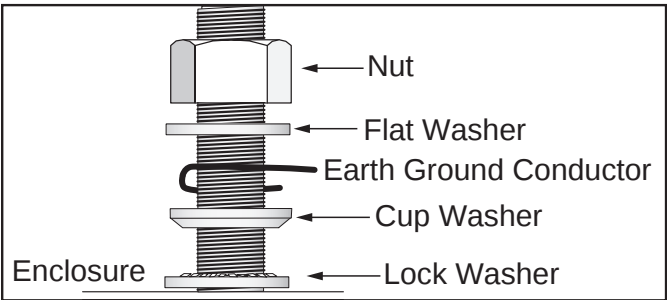
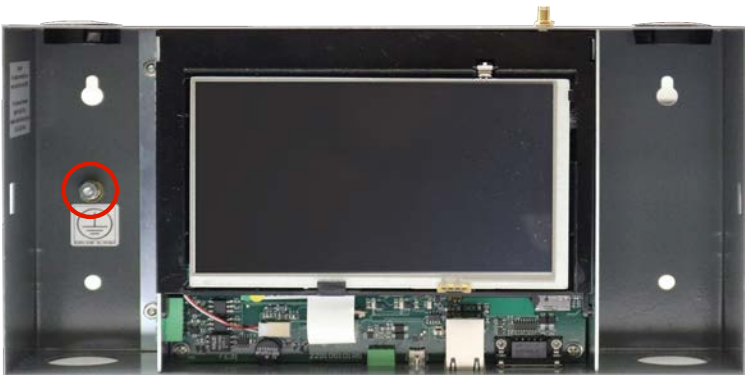
After wiring the IS safety grounds, check the resistance between the IS safety ground terminals at the console and the earth ground. This resistance must be less than 1 ohm.

110/240 VAC line power wire connections

Electrical Panel	No. Conductors, Color (Gauge)	Circuit
20 Amp Circuit Breaker	1 Black wire, 14 AWG (1.5 mm ²) min.	110/240 VAC Power
Neutral	1 White Wire, 14 AWG (1.5 mm ²) min.	Neutral
Ground Bus	1 Green wire, 14 AWG (1.5 mm ²) min.	Ground
Ground Bus	1 Green wire, 12 AWG (2.5 mm ²) min.	Safety Ground

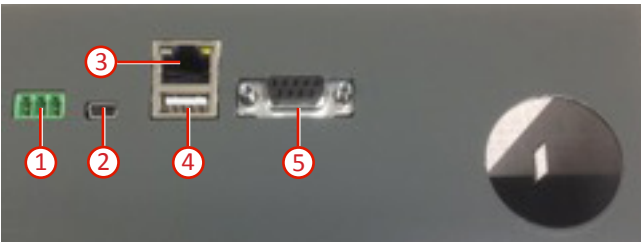
Console Ground Connection

Attach the ground wire to the grounding stud in the left compartment of the console.



Communication ports

The console has several communication ports that can be used to communicate with devices or connect to a local area network, point-of-sale device, external printer, or modem.

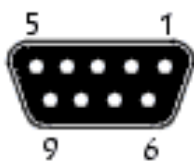


#	Port	Connector Type	Devices
1	RS-485	Pluggable terminal block	TPI/FE Petro Smart Controllers
2	Micro-USB	Female micro-USB	Local network or computer
3	Ethernet	RJ-45	Local network or computer
4	USB	Type A	External printer, modem, or USB flash drive*
5	RS-232 Comm 1	DB9 female	Modem, POS, or local PC

* A USB flash drive can be used to collect data or load upgraded files.

RS-232 communication connectors

A connector for RS-232 interface is on the bottom of the console. The following are the pin designations for this connector:



Female

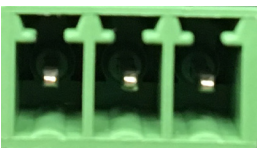
Console RS-232 Comm Port 1
DB9 Connector, Female, DCE

Pin No.	Function	Input/Output
2	TD	O →
3	RD	I ←
5	GND	

NOTE: Pins 1, 4, and 6-9 are not connected.

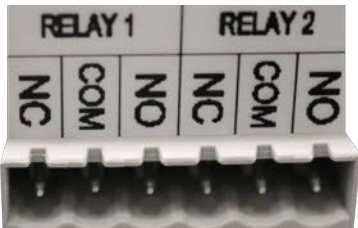
RS-485 communication connectors

One connector for RS-485 interface is provided on the bottom of the console. The pin designations for the RS-485 connectors are as follows:



Pin No.	Function
1	A
2	B
3	GND

Relay wiring

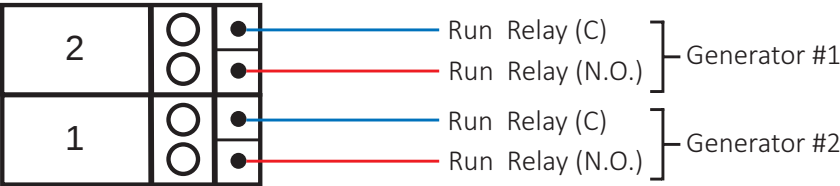


Relay	Terminal	Description
1	1.	Normally Closed
	2.	Common
	3.	Normally Open
2	4.	Normally Closed
	5.	Common
	6.	Normally Open

Dry contact wiring



Dry contacts



NOTE: Dry contacts are internally wetted with 5 VDC, 15 mA DC. External relays should have contacts suitable for low current.

NOTES:

1. THE MODEL UDPA-C) SHALL NOT BE CONNECTED TO ANY EQUIPMENT WHICH USES OR GENERATES GREATER THAN 250V.
2. EACH GROUND TERMINAL SHALL BE CONNECTED TO A SUITABLE SYSTEM EARTH GROUND. THE DC RESISTANCE BETWEEN GROUND TERMINALS AND EARTH GROUND SHALL BE LESS THAN 1 OHM.
3. THE MODEL UDPA-C) WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND APPLICABLE NATIONAL OR LOCAL CODES. CONDUCTORS OF DIFFERENT INTRINSICALLY SAFE CIRCUITS RUN IN THE SAME CABLE/CONDUIT MUST HAVE AT LEAST 0.25mm OF INSULATION.
4. CAPACITANCE AND INDUCTANCE OF THE FIELD WIRING FROM THE INTRINSICALLY SAFE EQUIPMENT TO THE BARRIER SHALL BE CALCULATED AND MUST BE INCLUDED IN THE SYSTEM CALCULATIONS AS SHOWN IN THE DIAGRAM TO THE RIGHT. CABLE CAPACITANCE (Cable) PLUS INTRINSICALLY SAFE EQUIPMENT CAPACITANCE (C) MUST BE LESS THAN THE MARKED CAPACITANCE (Co) SHOWN ON ANY BARRIER USED. THE SAME APPLIES FOR INDUCTANCE (L), Cable AND Lo, RESPECTIVELY. WHERE THE CABLE CAPACITANCE AND INDUCTANCE PER FOOT ARE NOT KNOWN, THE FOLLOWING VALUES SHALL BE USED: (Cable=60pF/ft, (200pF/m), Lcable=0.2uH/ft (0.7uH/m).
5. WIRING, CABLEING AND SEALS MUST BE INSTALLED IN ACCORDANCE WITH THE NEC, CEC OR OTHER APPLICABLE NATIONAL OR LOCAL CODES.
6. USE ONLY A CABLE THAT IS SPECIFIED IN THE USER INSTALLATION MANUAL OR LISTED EQUIVALENT FOR THE INSTALLATION OF LIQUID LEVEL PROBES.
7. USE THE FOLLOWING WIRE TYPES ONLY: 18 AWG MINIMUM. TO CONNECT SENSORS TO THE UDPA-C) ASSOCIATED APPARATUS, OIL AND GAS/LINE RESISTANT TYPES.
8. USE ONLY A GRIP OR INSULATION DISPLACEMENT TYPE CONNECTORS FOR ELECTRICAL CONNECTIONS (DO NOT USE WIRE NUTS OR OTHER TYPE CONNECTORS).
9. SEAL ALL FIELD WIRING CONNECTIONS FROM MOISTURE.
10. SEE INSTALLATION MANUAL FOR MORE DETAIL.
11. THE GENERAL CONTRACTOR MUST SUPPLY THE SPECIFIED WIRE, CONDUITS AND ELECTRICAL ACCESSORIES.
12. THE ENTRY CONCEPT ALLOWS THE USER TO IDENTIFY ACCEPTABLE COMBINATIONS OF INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS THAT HAVE NOT BEEN EXAMINED AS A SYSTEM. EACH APPARATUS IS EXAMINED INDIVIDUALLY FOR INTRINSICALLY SAFE PARAMETERS (UL 1288, 6TH EDITION) AND ASSIGNED A SET OF PARAMETERS CALLED BUTTRESS PARAMETERS. THE BUTTRESS PARAMETERS FOR UDPA-C) (ASSOCIATED APPARATUS) CAN BE FOUND IN THE DIAGRAM TO THE RIGHT. TO DETERMINE THE Vmax (U), Imax (I), CL, L AND PL VALUES, THE CONTROL DRAWING FOR THE INTRINSICALLY SAFE APPARATUS SHALL BE USED. THE COMBINATION OF THE INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS MUST COMPLY WITH THE FOLLOWING:

$U_0 (V_{oc}) \leq U_l (V_{max})$
 $I_0 (A) \leq I_l (I_{max})$
 $P_0 \leq P_l (P_{max})$
 $Co (Ca) \geq Ci + C_{cable}$ (SEE NOTE 4)
 $Lo (La) \geq Li + L_{cable}$ (SEE NOTE 4)

NON-INTRINSICALLY SAFE COMPARTMENT

INTRINSICALLY SAFE COMPARTMENT

NON- HAZARDOUS LOCATION

HAZARDOUS LOCATION

CLASS 1, DIV. 1, GROUP D

TO INTRINSICALLY SAFE APPARATUS OR SIMPLE APPARATUS

MODEL UDPA-B,C) ASSOCIATED APPARATUS EACH TERMINAL PAIR +, -

$U_0 = 27.51V_{dc}$
 $I_0 = 0.153 A$
 $L_0 = 114uH$
 $P_0 = 1.05W$

DEVICE N } OR SIMPLE APPARATUS

20. WARNING:

ASSOCIATED APPARATUS NON HAZARDOUS LOCATION PROVIDES INTRINSICALLY SAFE CIRCUITS FOR SENSORS LOCATED IN CLASS 1, DIV. 1, GROUP D HAZARDOUS LOCATIONS WHEN INSTALLED PER CONTROL DRAWING 228180006, SEE INSTALLATION INSTRUCTIONS.

21. WARNING:

THIS UNIT HAS MORE THAN ONE POWER SUPPLY CONNECTION POINT. DISCONNECT ALL POWER SUPPLIES BEFORE SERVICING.

22. WARNING:

CEITE UNITE A PLUS D'UN POINT DE D'ALIMENTATION, DEBRANCHEZ TOUTES LES ALIMENTATIONS ELECTRIQUES AVANT L'ENTRETIEN.

23.

THE ASSOCIATED APPARATUS MAY ALSO BE CONNECTED TO SIMPLE APPARATUS AS DEFINED IN ARTICLE 504.2 IN ACCORDANCE WITH ARTICLE 504.1(B) OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70), OR OTHER LOCAL CODES, AS APPLICABLE.

EX[ia]

UL US LISTED 6L79

EX CERTIFIED PRODUCT

-RELATED DOCUMENT-

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REVISIONS

REV	DATE	DESCRIPTION
1	10/10/17	719385
2	12/15/17	720653

INITIAL RELEASE

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FRANKLIN FUELING SYSTEMS

CONTROL DRAWING EVD (UL)

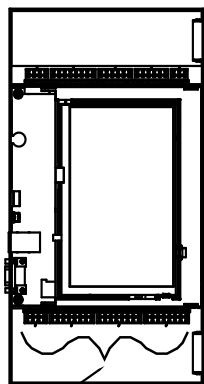
228180006

REV 1 OF 2

- NOTES:
1. THE MODEL UDPA-F, ANA-A,B,C, 485(D,E,F) SHALL NOT BE CONNECTED TO ANY EQUIPMENT WHICH USES OR GENERATES GREATER THAN 250V.
 2. EACH GROUND TERMINAL SHALL BE CONNECTED TO A SUITABLE SYSTEM EARTH GROUND. THE DC RESISTANCE BETWEEN GROUND TERMINALS AND EARTH GROUND SHALL BE LESS THAN 1 OHM.
 3. CAPACITANCE AND INDUCTANCE OF THE FIELD WIRING FROM THE INTRINSICALLY SAFE EQUIPMENT TO THE BARRIER SHALL BE CALCULATED AND MUST BE INCLUDED IN THE SYSTEM CALCULATIONS AS SHOWN IN THE DIAGRAM TO THE RIGHT. CABLE CAPACITANCE (C_{cab}) PLUS INTRINSICALLY SAFE EQUIPMENT CAPACITANCE (C_i) MUST BE LESS THAN THE MARKED CAPACITANCE (C₀) SHOWN ON ANY BARRIER USED. THE SAME APPLIES FOR INDUCTANCE (L_i, L_{cab} AND L₀ RESPECTIVELY), WHERE THE CABLE CAPACITANCE AND INDUCTANCE PER FOOT ARE NOT KNOWN, THE FOLLOWING VALUES SHALL BE USED: C₀=600pF/ft (200pF/m), L₀=0.24mH/ft (0.74H/m).
 4. WIRING, CABLING AND SEALS MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE NATIONAL OR LOCAL CODES.
 5. SEE INSTALLATION MANUAL FOR MORE DETAIL.
 6. THE ENTITY CONCEPT ALLOWS THE USER TO IDENTIFY ACCEPTABLE COMBINATIONS OF INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS THAT HAVE NOT BEEN EXAMINED AS A SYSTEM. EACH APPARATUS IS EXAMINED SEPARATELY BY AN ATEX NOTIFIED BODY AND ASSIGNED A SET OF PARAMETERS CALLED ENTITY PARAMETERS. THE ENTITY PARAMETERS FOR UDPA-F, ANA-A,B,C, 485(D,E,F) (ASSOCIATED APPARATUS) CAN BE FOUND IN THE DIAGRAM TO THE RIGHT. TO DETERMINE THE M, I, C, L, AND P₀ VALUES THE CONTROL DRAWING FOR THE ASSOCIATED APPARATUS SHALL BE USED. THE COMBINATION OF THE INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS MUST COMPLY WITH THE FOLLOWING:
 $U_0 < U_i$
 $I_0 \leq I_i$
 $P_0 \leq P_i$
 $C_0 \geq C_i + C_{cab}$
 $L_0 \geq L_i + L_{cab}$ (SEE NOTE 3)
 7. THE OUTPUT CURRENT OF THIS ASSOCIATED APPARATUS IS LIMITED BY A RESISTOR SUCH THAT THE OUTPUT VOLTAGE-CURRENT PLOT IS A STRAIGHT LINE DRAWN BETWEEN OPEN-CIRCUIT VOLTAGE AND SHORT-CIRCUIT CURRENT.
 8. ASSOCIATED APPARATUS MUST BE INSTALLED IN AN ENCLOSURE SUITABLE FOR THE APPLICATION IN ACCORDANCE WITH THE NATIONAL AND LOCAL CODES, AS APPLICABLE.
 9. INTRINSICALLY SAFE CIRCUITS MUST BE WIRED AND SEPARATED IN ACCORDANCE WITH NATIONAL AND LOCAL CODES, AS APPLICABLE.
 10. THIS ASSOCIATED APPARATUS HAS NOT BEEN EVALUATED FOR USE IN COMBINATION WITH ANOTHER ASSOCIATED APPARATUS.

NON-INTRINSICALLY SAFE COMPARTMENT

INTRINSICALLY SAFE COMPARTMENT



NON-INTRINSICALLY SAFE COMPARTMENT

INTRINSICALLY SAFE COMPARTMENT

MODEL UDPA-A,B,C,
ASSOCIATED APPARATUS
EACH TERMINAL PAIR: +, -

U₀ = 27.51 VDC
I₀ = 0.153 A
C₀ = 104uF
L₀ = 1.4 mH
P₀ = 105W

DEVICE N } TO INTRINSICALLY SAFE APPARATUS
GROUP 1 } OR SIMPLE APPARATUS

11. ATEX/IECEx APPROVAL DISPLAYED:

CE 0539 Ex II (1) G
IECEx UL 17.0059
Ex ia Ga IIA
DENKO 17 ATEX 1902

12. ALL OF THE ABOVE INFORMATION CAN BE COMBINED INTO A CONTROL DRAWING WITH OTHER CERTIFICATIONS OR IN THE INSTALLATION INSTRUCTIONS IN ANY OF THE FOLLOWING FORMATS:
 a. ALL INFORMATION ON THIS DRAWING MUST BE SHIPPED WITH EACH PRODUCT.

13. THE ASSOCIATED APPARATUS MAY ALSO BE CONNECTED TO SIMPLE APPARATUS AS DEFINED IN ARTICLE 504.2 AND INSTALLED AND TEMPERATURE CLASSIFIED IN ACCORDANCE WITH ARTICLE 504.10(B) OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70), OR OTHER LOCAL CODES, AS APPLICABLE.

EX-CERTIFIED PRODUCT
-RELATED DOCUMENT-
NO MODIFICATIONS PERMITTED
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AUTHORIZED PERSON

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REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
2	SEE PAGE 1	-	-

HAZARDOUS LOCATION			
GROUP	IIA, ZONE	0	

FRANKLIN FUELING SYSTEMS			
CONTROL DRAWING EVD (ATEX/IECEx)	228180006	REV 2	2

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EVO™ 200 AND EVO™ 400 AUTOMATIC TANK GAUGES

OPERATION GUIDE



The information in this publication is provided for reference only. While every effort has been made to ensure the reliability and accuracy of the information contained in this manual at the time of printing, we recommend that you refer to “franklinfueling.com” for the most current version of this manual. All product specifications, as well as the information contained in this publication, are subject to change without notice. Franklin Fueling Systems does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of, or in any way connected with, installation, operation, use, or maintenance by using this manual. Franklin Fueling Systems assumes no responsibility for any infringement of patents or other rights of third parties that may result from use of this manual or the products. We make no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

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China: +86.10.8565.4566

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228180016 r1

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Introduction

The purpose of this manual is to guide installers, operators and technicians through the operation of EVO™ 200 and EVO™ 400 automatic tank gauges (ATGs). EVO™ 200 and EVO™ 400 ATGs incorporate the monitoring and alarm capabilities of preceding automatic tank gauges with advanced technologies to supply tank and level data more accurately and efficiently. This manual is also designed to introduce technicians to the optional LCD Graphical User Interface, which is used as an input device to program system configuration and maintain all applications from the front panel of the console. Overall safety issues, troubleshooting information, start-up procedures, warranty, service and return policies, as defined in this manual, must be followed.

EVO™ 200 and EVO™ 400 ATGs consist of an open architecture console that can run multiple Fuel Management Applications simultaneously. It typically contains a color LCD touch screen user interface, but it can also be operated by a web-based remote interface. Magnetostrictive Liquid Level Probes inside of the tanks provide the console with inventory and leak detection information. A variety of optional sensors can be used to monitor containment spaces.

User interface

LED Indicators: Three LEDs below the front panel give an “at-a-glance” indication of the system status. These LEDs are standard on all systems. The green Power LED indicates that the system power is on. The yellow Warning LED gives indication that the console has detected a malfunction or condition that has been deemed a Warning. The red Alarm LED indicates that the system has detected an alarm condition.

LCD Touch Screen: The color LCD touch screen is the most commonly used user interface for the Fuel Management System. This bright and colorful display allows easy viewing in any lighting condition. Touching certain buttons or segments of the screen will allow access to menus or more detailed information. Do not use sharp or pointed objects to operate the touch screen or damage may result. If improper operation of the touch screen is noted, it may be necessary to calibrate the touch screen. Please refer to the Routine Maintenance chapter of this manual for calibration procedures.

Questions and concerns

In case of emergency, follow the procedures established by your facility. If you have questions or concerns about safety or need assistance, use the information below to contact Franklin Fueling Systems:

Web: franklinfueling.com

Telephone:

USA and Canada: +1.608.838.8786, +1.800.225.9787

USA Technical Support: 1.800.984.6266

UK: +44 (0) 1473.243300

Mexico: 001.800.738.7610

China: +86.10.8565.4566

Conventions used in this manual

This manual includes safety precautions and other important information presented in the following format:

NOTE: This provides helpful supplementary information.

IMPORTANT: This provides instructions to avoid damaging hardware or a potential hazard to the environment, for example: fuel leakage from equipment that could harm the environment.

⚠ CAUTION: This indicates a potentially hazardous situation that could result in minor or moderate injury if not avoided. This may also be used to alert against unsafe practices.

⚠ WARNING: This indicates a potentially hazardous situation that could result in severe injury or death if not avoided.

⚠ DANGER: This indicates an imminently hazardous situation that will result in death if not avoided.

🔴 This indicates an alarm has activated and provides details so you can correct the problem. You can custom program system hardware failure warnings, as well as leak detection sensor, line leak, and tank-related alarms. Events denoted below with an asterisk "*" are ones you must program:

- The red alarm light or yellow warning light flashes.
- The console annunciator alarm horn sounds.*
- Internal output relays for external alarm devices activate.*
- Alarm reports print automatically, either locally through direct interface or remotely through USB.*
- Alarm and test reports are sent to a specified e-mail address.*
- Reports are sent to remote location(s) through an internal data/fax modem.*

Operating precautions

Franklin Fueling Systems (FFS) equipment is designed to be installed in areas where volatile liquids such as gasoline and diesel fuel are present. Working in such a hazardous environment presents a risk of severe injury or death if you do not follow standard industry practices and the instructions in this manual. Before you work with or install the equipment covered in this manual, or any related equipment, read this entire manual, particularly the following precautions:

IMPORTANT: When you move the drop tube inside the tank riser pipe, do so slowly and carefully to help prevent the drop tube from impacting the riser pipe.

IMPORTANT: To help prevent spillage from an underground storage tank, make sure the delivery equipment is well-maintained, that there is a proper connection, and that the fill adaptor is tight. Delivery personnel should inspect delivery elbows and hoses for damage and missing parts.

⚠ CAUTION: Use only original FFS parts. Substituting non-FFS parts could cause the device to fail, which could create a hazardous condition and/or harm the environment.

⚠ WARNING: Follow all codes that govern how you install and service this product and the entire system. Always lock out and tag electrical circuit breakers while installing or servicing this equipment and related equipment. A potentially lethal electrical shock hazard and the possibility of an explosion or fire from a spark can result if the electrical circuit breakers are accidentally turned on while you are installing or servicing this product. Refer to this manual (and documentation for related equipment) for complete installation and safety information.

⚠ WARNING: Before you enter a containment sump, check for the presence of hydrocarbon vapors. Inhaling these vapors can make you dizzy or unconscious, and if ignited, they can explode and cause serious injury or death. Containment sumps are designed to trap hazardous liquid spills and prevent environmental contamination, so they can accumulate dangerous amounts of hydrocarbon vapors. Check the atmosphere in the sump regularly while you are working in it. If vapors reach unsafe levels, exit the sump and ventilate it with fresh air before you resume working. Always have another person standing by for assistance.

⚠ WARNING: Follow all federal, state, and local laws governing the installation of this product and its associated systems. When no other regulations apply, follow NFPA codes 30, 30A, and 70 from the National Fire Protection Association. Failure to follow these codes could result in severe injury, death, serious property damage, and/or environmental contamination.

⚠ WARNING: Always secure the work area from moving vehicles. The equipment in this manual is usually mounted underground, so reduced visibility puts service personnel working on it in danger from moving vehicles that enter the work area. To help prevent this safety hazard, secure the area by using a service truck (or some other vehicle) to block access to the work area.

⚠ WARNING: Discharge static electricity from the splice kit to ground before you install it, and make sure it is properly grounded while in service.

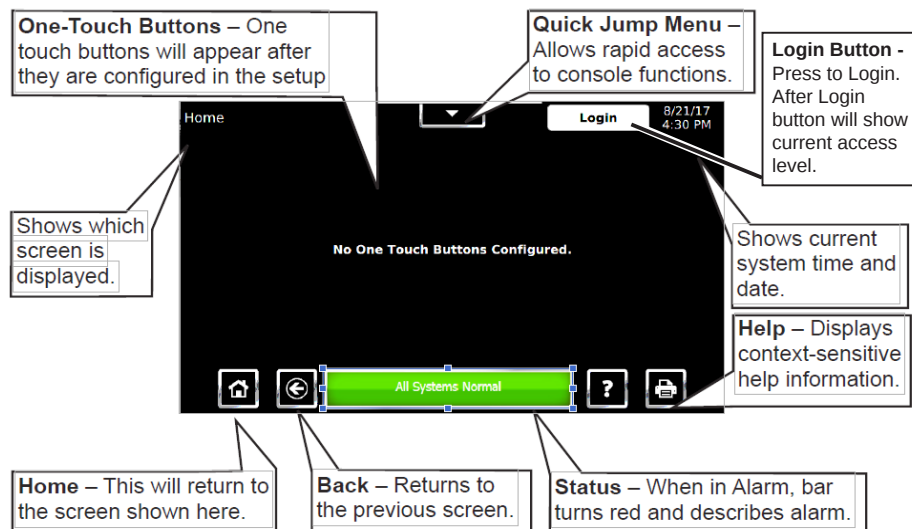
⚠ DANGER: Make sure you check the installation location for potential ignition sources such as flames, sparks, radio waves, ionizing radiation, and ultrasound sonic waves. If you identify any potential ignition sources, you must make sure safety measures are implemented.

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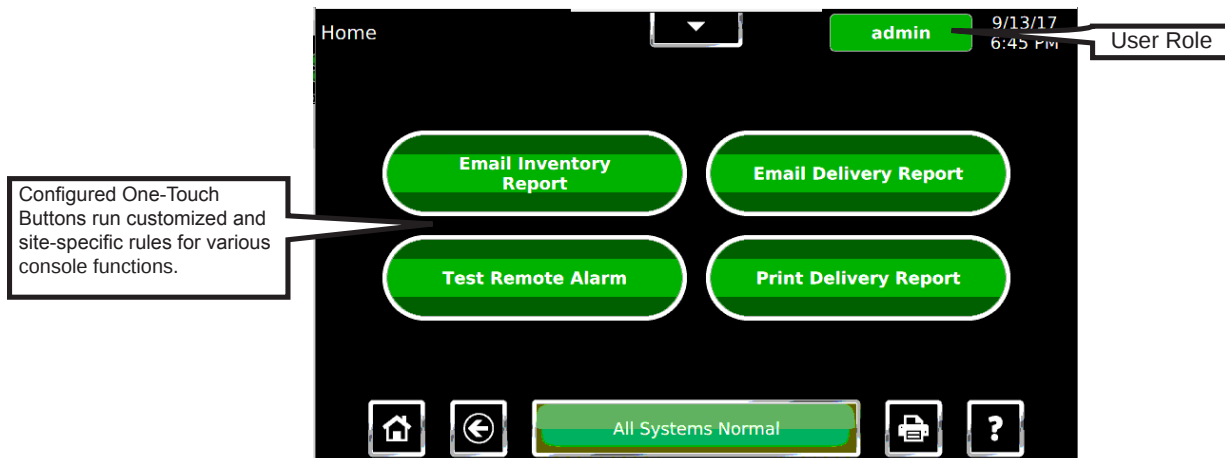
Programming and Navigation

Console navigation

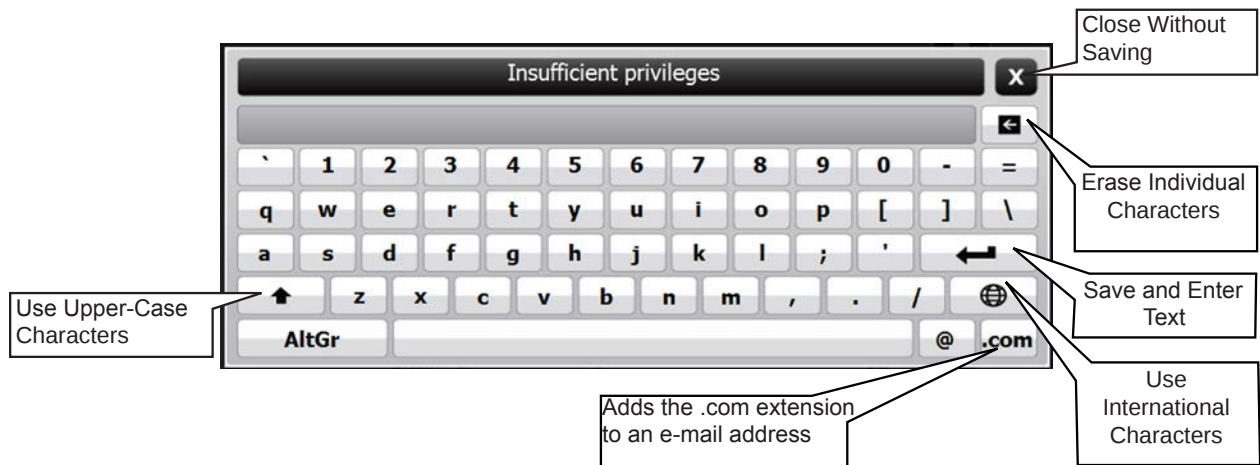
The operating system is designed for easy navigation. Applications allow the user to modify programming options by responding to on-screen commands. The following instructions show various operating system functions, so that issues can be corrected efficiently without interrupting dispensing or sales.



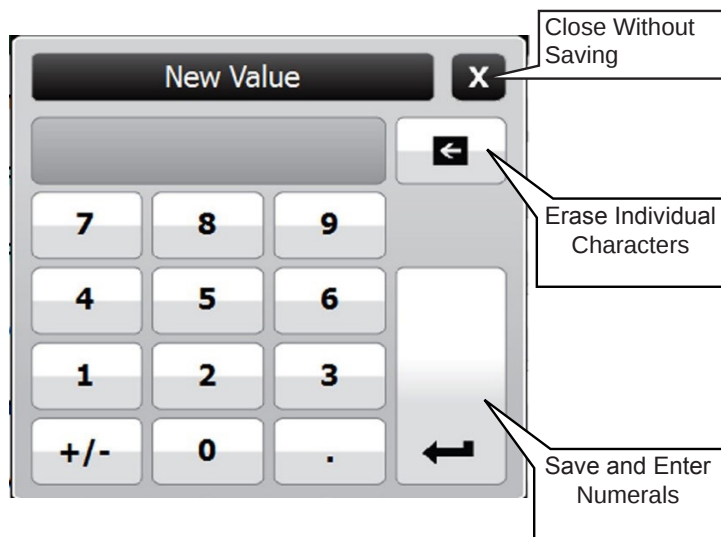
The following is an example of console interface with One Touch Buttons configured:



Text entry



Number entry



Alarms and warnings

Alarms and warnings alert you to problems and provide details about those problems so that you can take corrective action. System hardware failure warnings, tank related alarms, and leak detection sensor alarms always notify you in certain ways (other notification options are programmable). When no problems have been detected, the status indicator is green:

All Systems Normal

When there is an alarm condition, the status indicator changes to red:

TS-DTU 1 Remote DTU is offline

Optionally, on alarm, the system can:

- Sound the console's internal alarm horn.
- Activate relay outputs and sound external alarm devices.
- Print alarm reports.
- E-mail alarm reports to a specified destination.
- Notify remote monitoring software via optional internal modem or Ethernet.

For help with troubleshooting alarms, refer to the Troubleshooting chapter of the *EVO™ 200 and EVO™ 400 Automatic Tank Gauges Programming Guide* (FFS p/n 228180015).

User roles and access control

When you start up an EVO™ 200 or EVO™ 400 ATG, the system asks for an administrator password. This password is used to gain administrator access to all functions and set up the configuration. The administrator can then define user roles for all individuals who may need to interface with the ATG. The administrator implements the access control by configuring two sections in the setup configuration.

User roles

The administrator names each potential user role and selects the permissions for these roles. Each user role has the Custom permissions setting, which allows the Administrator to select specific information and functionality access.

Users

The administrator configures the password and the system preferences for each user role.

Custom: Each level allows an operator to access different console features. This security feature prevents unauthorized access to critical information and settings. The password for each access level can be adjusted by the administrator. The administrator level is typically reserved for an FFS certified technician. Users are prompted for a password to access or change data.

The Login button in the upper left hand corner of the display allows you to log into the console. This displays the user role access level.

Admin: This level grants access to all areas of programming and setup configuration. This privilege is usually reserved for FFS certified technicians.

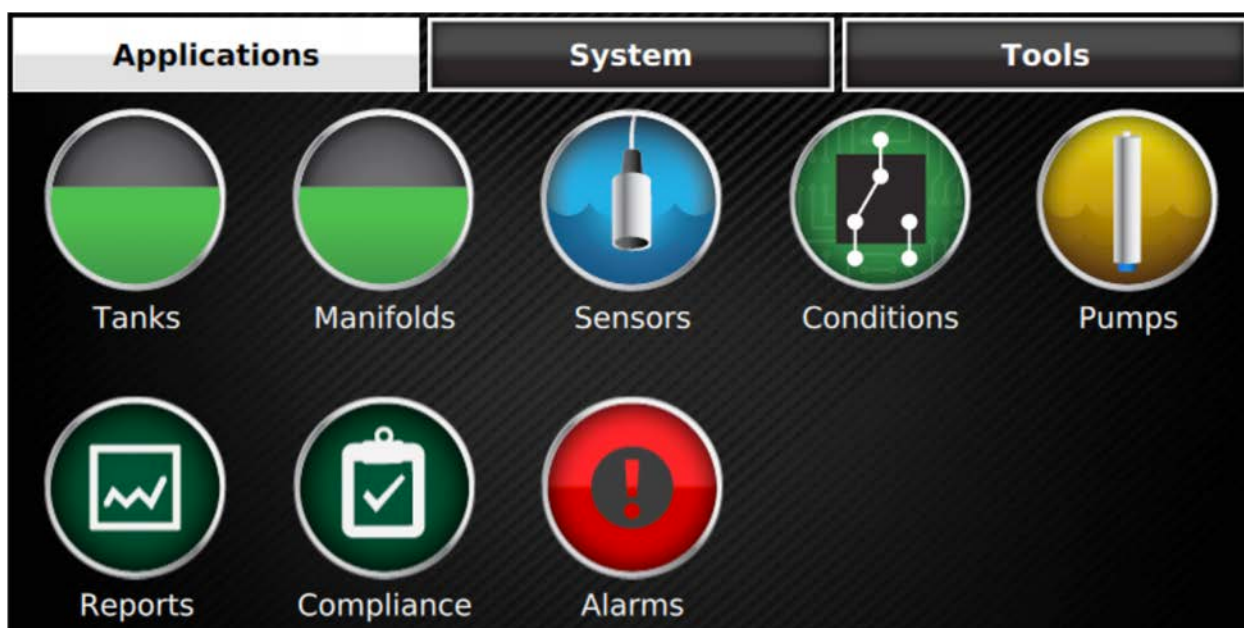
Diagnostic: This level is only used for advanced troubleshooting and diagnostics. Contact FFS Technical Support.

Quick Jump Menu

The Quick Jump Menu (QJM) provides quick access to the different parts of the console interface. There are three tabs in the QJM:

- Applications
- System
- Tools

Applications tab



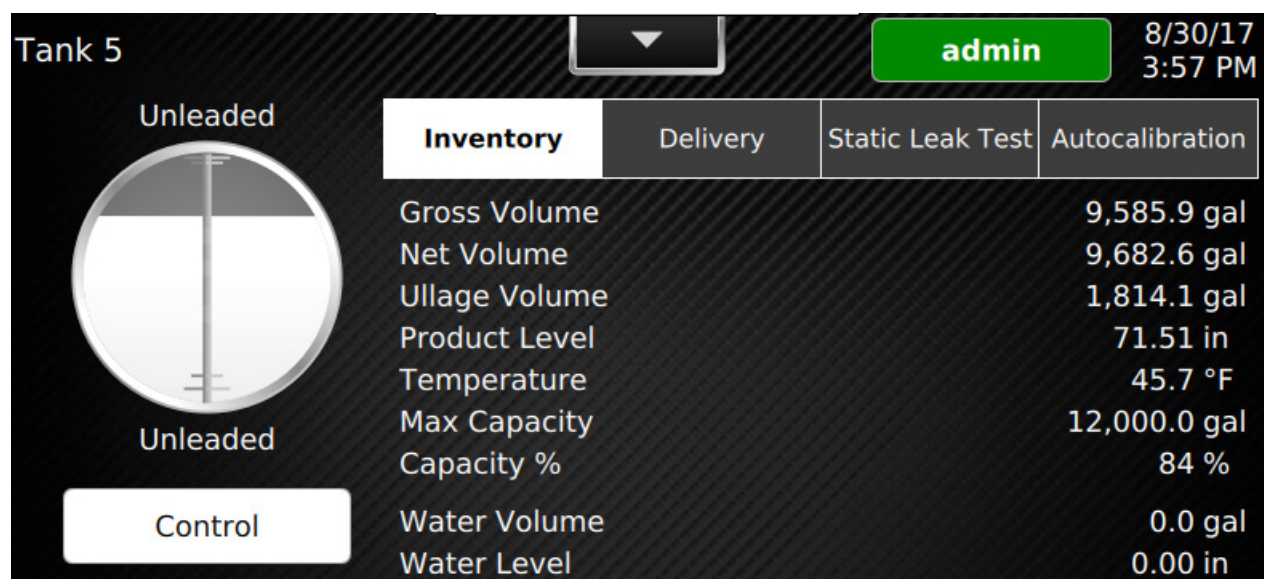
The Applications tab provides inventory management and leak detection for tanks and sensors as well as tank and sensor control. This application also allows users to print reports and tank tests. A broad range of hydrocarbon products can be leak-tested and inventory-monitored using magnetostrictive liquid level probes. These probes come in a variety of lengths and typically contain two floats for indicating both product and water levels inside the of tank. Programmable limits can be set to indicate high and low conditions. Containment sumps, interstitial spaces, monitoring wells and other areas can be monitored for water and hydrocarbon intrusion using a wide range of optional Standard and BRITESENSORS®. These 2-wire sensors come in discriminating and non-discriminating versions. These sensors can be used in any combination depending on site specifications. See "Sensors" for more information.

Tanks

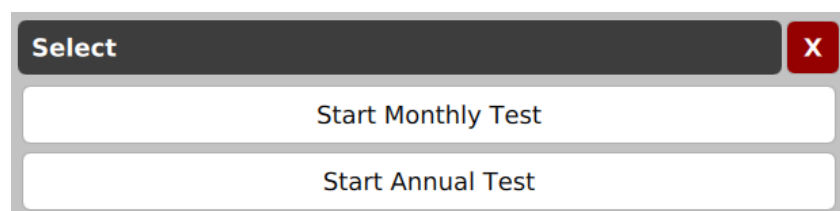
To open the Tanks screen, click the QJM button>Applications>Tanks. This screen shows alarms, product and water levels in the tanks, the product name, and the current volume. To print an inventory report, click the printer icon.

Tanks detail screen:

This screen provides details about product volume, level, temperature, and ullage space available in a tank. The level and volume of water is also be shown. The hash marks on the graphic indicate the various programmed high and low alarm limits. Alarms, if there are any, are also shown. This screen also provides details regarding the tanks Static Leak Test status, Autocalibration status, and Delivery history with the tabs in the top left column. Click Print button to print an Inventory Report for this tank. To open this screen, select a tank from the Tanks screen.



The tank controls feature can be accessed using the Control button on the Tank Inventory Detail screen. This allows authorized users and technicians to start tank tests or autocalibration when applicable.



Manifolds

To open the Manifolds screen, click the QJM button>Applications>Manifolds. This screen shows alarms, product and water levels in the manifolded tanks, the product name, and the current volume. To print an inventory report, click the printer icon.

Sensors

This screen displays a graphical representation of a sensor, the name of the sensor and will indicate any alarm conditions. Pressing the print button from the screen will print a sensor status report for all of the sensors. To access the sensor status summary screen click the QJM button>Applications>Sensors.

Standard Sensors:

Standard sensors do not discriminate between liquid and hydrocarbons and are 2-wire sensors:

- FMP-EIS-U: Electro-optic Interstitial Sensors (infrared, liquid sensor)
- FMP-UHS: Universal Hydrostatic Sensor (float switch, liquid level sensor)
- FMP-ULS: Universal Liquid Sensor (float switch, liquid level sensor)

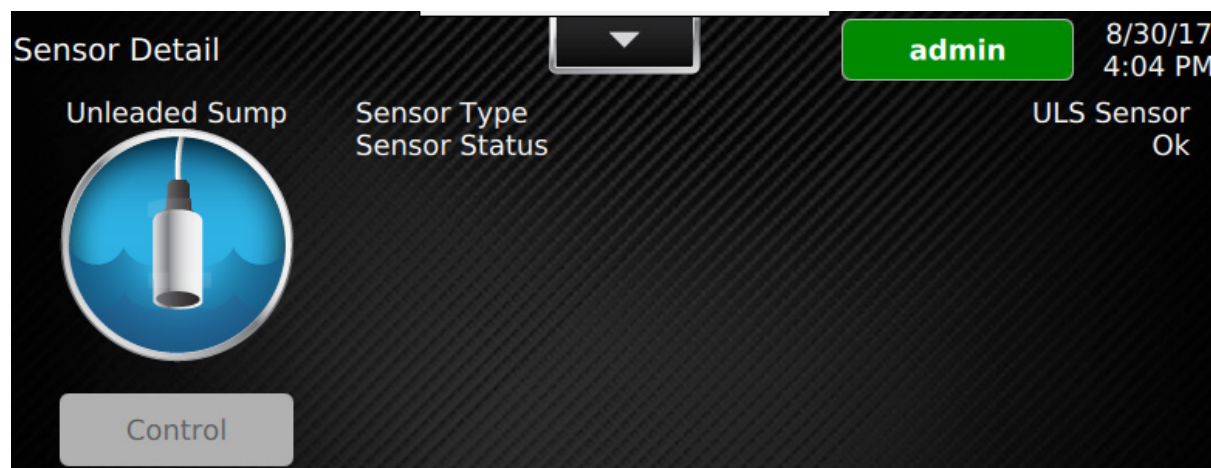
BRITESENSORS®:

BRITESENSORS® are discriminating sensors (many of which may generate multiple alarms):

- FMP-DIS-U: Discriminating Interstitial Sensor (Electro-optic and conductivity, liquid sensor)
- FMP-HIS-U and FMP-HIS-XL-U: Hydrostatic Interstitial Sensor (float switches, Brine sensor)
- FMP-DDS-U: Discriminating Dispenser sump Sensor
- FMP-DTS-U: Discriminating Turbine sump Sensor (conductivity strip and floats, liquid and vapor sensor)
- TSP-DMS: Discriminating Magnetostrictive Sensor (position sensitive)

Sensors detail screen:

This screen provides details on the sensor type and the sensors current status. Any alarm condition on the sensor is also indicated here, if present. Pressing the print button from this screen will print a sensor report for that tank. To access the sensor status detail screen, select a sensor from the sensor status summary screen.

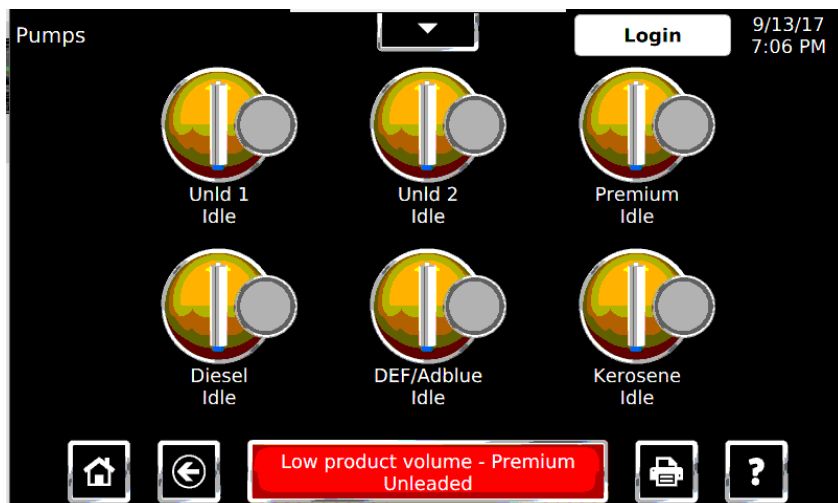


Conditions

To open the Tanks screen, click the QJM button>Applications>Conditions. This screen allows you to check the current status of the programmed conditions.

Pumps

This screen displays a graphical representation of the submersible pumps, the name of the pump, and an indication whether the pump is running or not. An alarm condition on the pump is also indicated here, if present. Pressing the print button on this screen prints a pump status report for all Pumps. To access this screen, click the QJM button>Applications>Pumps.



Pumps detail screen:

This screen provides a variety of information regarding the pump and its settings. Information including: Pump Name, Enabled/Disabled, Controller Type, Controller Address, the tank the pump is installed in, and the pump group. The screen also includes status information such as Pump Running, has the pump been forced off, and if a hook signal is present. Clicking the print button while on the page will print a pump status report for your selected tank.



The pump controls feature can be accessed using the Control button on the screen. This allows authorized users and technicians to reset the pump hardware and software.

Reports

This screen is used to create a variety of reports. The report options available depend on software options and system configuration. The available reports include: Alarm History, Event History, Setup, Inventory, Deliveries, Tank Test, SCALD®, Pump Status, Reconciliation, Regulatory, and Sensor Status. To access this screen, click the QJM button>Applications>Reports.

Compliance

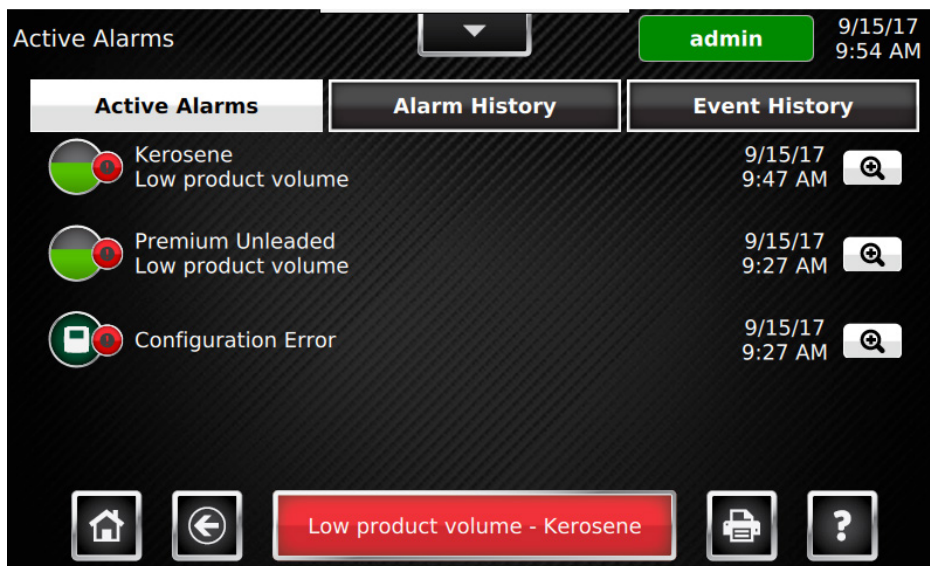
This screen displays regulatory status information for tanks, manifolds, and sensors. Each page lists every device, the number of days remaining, and the date when the device will be out of compliance. The screen indicates compliance concerns with a color coded status indicator. To access this screen, click the QJM button>Applications>Compliance. Click Tanks (Monthly), Tanks (Annual), Manifolds, or Sensors for the associated device.

Compliance status:

-  Compliant – The device is in compliance.
-  Compliance Alert – The device will be out of compliance in 8 to 14 days.
-  Compliance Warning – The device will be out of compliance in 1 to 7 days.
-  Compliance Alarm – The device is out of compliance.

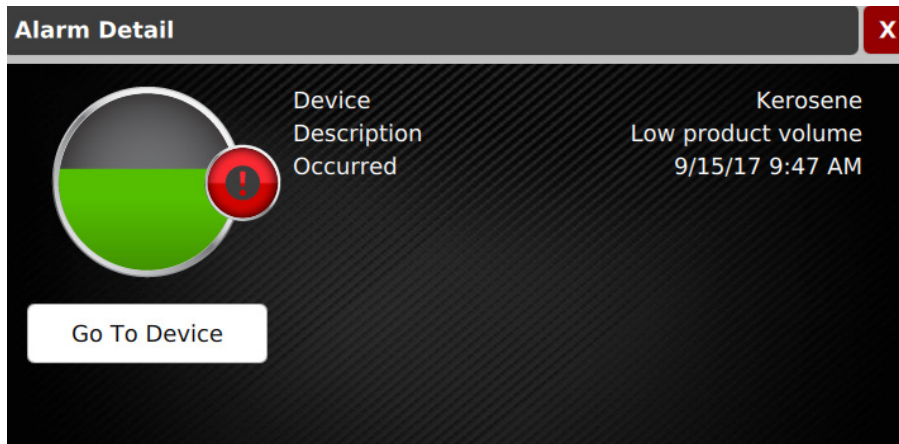
Alarms

This screen displays active alarms, an alarm history, and an event history. From the alarm summary screen, users can view currently active alarms, review alarm and event histories, and obtain details about active alarms. To access this screen, click the QJM button>Applications>Alarms.

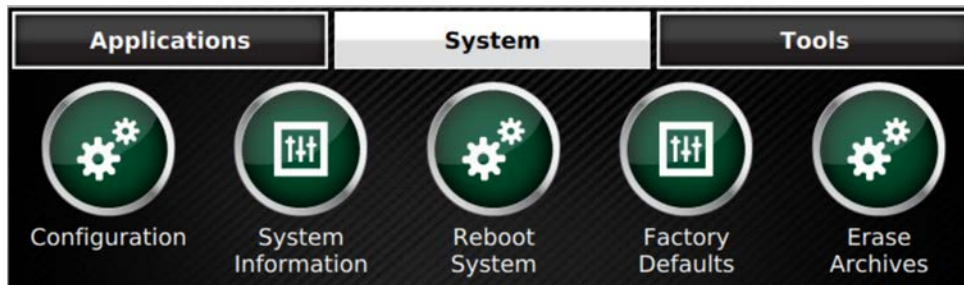


Alarm Detail screen:

This screen provides detailed information regarding an active alarm. These details include the device, the date and time the alarm occurred, and a description of the alarm. It will also provide hints for recommended actions and precautions. Many alarms will also have a “Go To Device” link which directs users straight to the device to allow users to perform corrective actions. Pressing help from this screen will provide further details regarding the specific alarm. To access this screen, select an alarm from the list of active alarms.



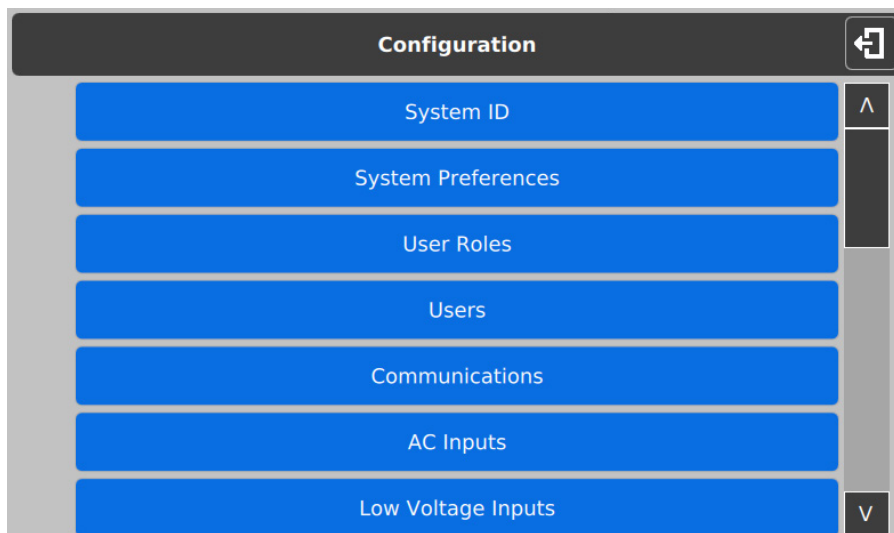
System tab



The System tab monitors the console's operational status and manages software options and upgrades. All preferences and configuration settings are controlled by this application (e.g., display options, clock and calendar). The system application is standard on every console.

Configuration

The Configuration screen allows users and technicians to change console configuration, setup, and preferences. To access the Configuration screen click the QJM button>System>Configuration



System Information

- Identification: This displays system identification information including: System Serial Number, Ethernet Address, Controller Serial Number, and the system creation date.
- Software Options: This displays a list of optional software and whether they are activated.
- About: This displays contact information for Franklin Fueling Systems and a note regarding Open Source software.

Reboot System

This will perform a system software reboot and requires an administrator password. To access the Reboot System tab click the QJM button>System>Reboot System

Factory Defaults

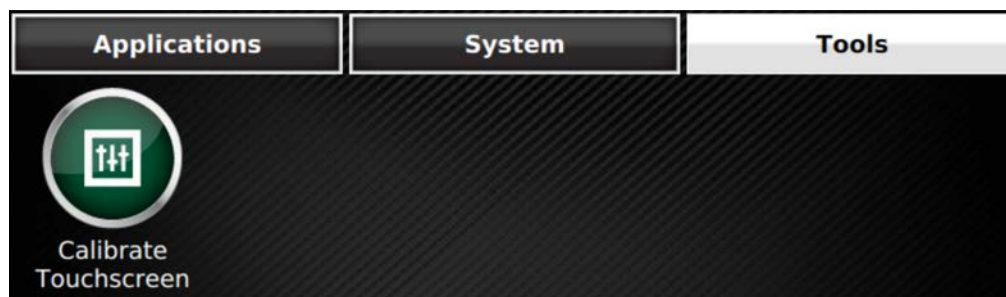
Reset system configuration to factory defaults. To access the Factory Defaults tab click the QJM button>System>Factory Defaults

Erase Archives

Delete all system configuration and historical information. To access the Factory Defaults tab click the QJM button>System>Factory Defaults.

Tools tab

This section allows the user to calibrate the LCD Touchscreen.



Printing Reports

External Printers

External printing is accomplished via USB. No software drivers need to be installed to print via USB. Connect the USB cable to the printer and the USB port on the console. The unit is now ready to print. Approved printer are updated regularly, please see our web page for details.

NOTE: The setup will need to be changed so the printer option is 0, save the configuration, connect the printer and cycle the power of the tank gauge.

Network Printers

EVO™ 200 and EVO™ 400 ATGs can be configured to utilize a printer on a network shared with it.

1. Select QJM>System>Configuration>Printing.
2. Choose the  in the upper right-hand corner to add a printer.
3. Enter the Name, URI, Make and Model/Driver information for the printer.

Print Button

The Print Button will print the data displayed on the LCD when available.

Reports Options

The following reports are available for the different optional Applications. Each report allows you to select the date range of data you wish that report to contain.

Reports

Report	Description
Alarm History	A history of the Alarms that have occurred.
Event History	A history of the Application Events that have occurred.
Setup	A printout of the system programming.
Inventory	Complete level, volume, temperature and ullage info for each tank.
Deliveries	Start and ending level and volume information and total amount delivered.
Tank Test	Annual and monthly static tank testing results. (tank testing option required)
SCALD®	24 hr continuous monthly tank testing results. (tank testing option required)
Regulatory	Complete compliance report for all tanks and sensors.
Sensor	Alarm status of all monitoring sensors.

Intentionally Blank

Tank Testing

The two types of tank tests available for your ATG are Static and Statistical Continuous Automatic Leak Detection (SCALD®).

Static tests

Static tests are run during quiet times when the tank is thermally stable and the site is closed so that no dispensing or deliveries will occur. The two types of Static tests are:

- Monthly (0.2 gph)
- Annual (0.1 gph)

Static tests can be scheduled to run on a Daily, Weekly or Monthly basis in the Setup menu (if you have administrator privileges). They can also be started on demand from the Tanks detail screen. Make sure all testing conditions are met before starting a Static Tank Test.

SCALD® tests

SCALD® tests run 24 hours a day and look for periods of quiet time when the tank is thermally stable and no dispensing or deliveries are occurring. These quiet periods are collected and analyzed, and the tightness of the tank is determined.

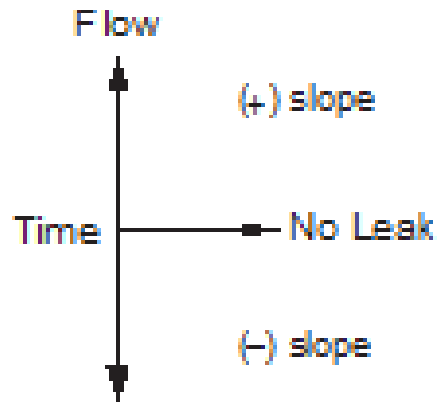
These tests update whenever possible and can be setup to print automatically. A common method is to schedule the latest test to print out once a week. This method requires less paper because tests can be generated multiple times a day on a quiet tank. Static and SCALD® tests run independently of each other and can be run at the same time. A SCALD® test will likely complete during the time the Static test is running.

All FFS ATGs meet the requirements of the U.S. Environmental Protection Agency (EPA/530/UST-90/006 test protocol) for ATGs. The system(s) also meet the requirements for Annual Tank Tightness Testing for 0.1 gal/hr leaks of the National Work Group on Leak Detection Evaluations (NWGLDE). Third Party Testing Laboratory test results (for standard static tank leak tests) are also available at <http://nwglde.org/>.

Why Test the Integrity of a Tank?

In compliance with federal, state and local regulatory policies, all tanks must be monitored for leaks due to environmental and public safety/health concerns. Tank tightness testing determines if there is a leak.

Static Testing



Terms

Threshold: Test results must be within these programmable limits to pass a leak test. There are Monthly, Annual and Sentinel Mode Thresholds.

Sentinel Mode: Sentinel mode is designed to monitor the product levels in your tank(s) when there isn't supposed to be any dispensing.

Confidence: Level of testing sensitivity indicating the probability that the test will detect a leak. Higher confidence percentages will produce more sensitive test results. Check local regulations to verify acceptable confidence levels.

Slope (Tank Testing Reports): A ratio of the calculated rate of change to the time the rate is measured. Slope is affected by leaks and by many other sources of interference. A negative slope or decrease indicates loss of product volume. A positive slope or increase indicates a rise in product volume.

Tank Test Requirements

Static Tank Testing is a standard feature of your ATG. SCALD® is an option you can order when you purchase the console or after initial purchase by using the part number TS-TT.

Test Types

This system is designed to perform two types of static tests to comply with regulatory policies.

- 0.1 GPH Annual Leak Test - Detects a rate increase or decrease of product in the tank, other than dispensing (no testing during dispensing), at a rate greater than 0.1 gallons per hour.
- 0.2 GPH Monthly Leak Test — Detects a rate increase or decrease of product in the tank, other than dispensing (no testing during dispensing), at a rate greater than 0.2 gallons per hour.

Ideal Test Conditions

Tank and environmental conditions play an important role in passing results. Consider the following items when scheduling or manually forcing a static leak test:

Variable	Explanation
Product Level	The level in the tank must submerge at least the lowest RTD (temperature sensor) inside the probe shaft.
Temperature Stability	A tank with more product inside is likely to be stable thermally and allow for higher quality results
Time of Day	This variable ties in with temperature stability. Though not likely, product in the tank may dramatically rise and fall in temperature from dawn to afternoon and then from dusk to night. Typically, thermal issues affect aboveground storage tanks more often than Underground Storage Tanks
Deliveries	A period of time is required to wait without a delivery between the last delivery and testing. The time to wait is 4 hr 9 min for a 0.2 GPH and 5 hr 18 min for a 0.1 GPH after a delivery (in accordance with third party testing). This time will allow the product to settle. If the wait time is not observed, then the test may abort or fail.
Dispensing	If dispensing occurs during a test, that test will be aborted.
Test Time	The test should be scheduled or manually forced when the test will not exceed the maximum leak test time. If the maximum time is surpassed, an Incomplete result is likely to occur. If scheduling or manually forcing a test, take into account what the sites hours of operation are to avoid a dispense during testing. Doing this will prevent aborted and incomplete tests.

Starting static tests manually



NOTE: This procedure requires User level privileges.

1. Open the Quick Jump menu.
2. Under Applications, select Tanks, and then click the tank you want to test.
3. Click Control.
4. Click Test Type, and choose either Monthly or Annual.

Static Test Results

Pass: This result confirms the integrity of the tank.

Fail: This result is indicated by a warning light and/or annunciator. (A report may print if the console is programmed to do so. For more information, see the *EVO™ 200 and EVO™ 400 Automatic Tank Gauges Programming Guide* (FFS p/n 228180015).

Abort: The result has been stopped due to variations in float level and/or product temperature that are outside of the leak test threshold. This may be caused by:

- Dispensing
- Loss of Probe Signal
- Delivery
- Rapid Temperature Change
- Theft
- Product Lower than the lowest RTD
- Pump Started

Incomplete – When the test does not collect enough data before the programmed time limit ends, the test will be Incomplete. When it's necessary to obtain valid results for compliance reasons, start the test manually.

SCALD®

SCALD® runs 24 hours a day performing 0.2 GPH tests on tanks at sites that do not have enough quiet time to complete static tests (some static tests may take up to eight hours to complete).

This test is available only if the option for Tank Testing is enabled. This option can be ordered when initially purchasing the console or afterwards. The part number for this option is TS-TT for the EVO™ 200 and EVO™ 400 ATGs.

Why Continuously Test Tank Integrity?

In compliance with federal, state and local regulatory policies, all tanks must be monitored for leaks due to environmental and public safety/health concerns. Tank Integrity Tests determine whether there is a leak.

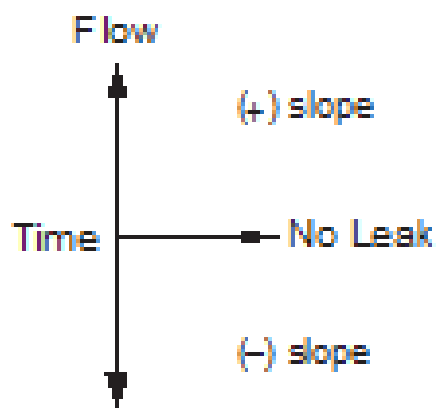
Since SCALD® continuously runs statistical tank leak tests during the inactive periods between product deliveries and dispensing, it is particularly useful for:

- Operations that are open for business on a continuous (24 hours, 7 days a week) schedule
- Operations that are open for business on a two-shift schedule and where deliveries may occur at any time during non-business hours (normally schedule tank leak tests may require up to 8 hours of inactivity).

Terms

Qualify: The percentage of product that the tank is required to contain prior to testing according to the programmed “Qualify” parameter.

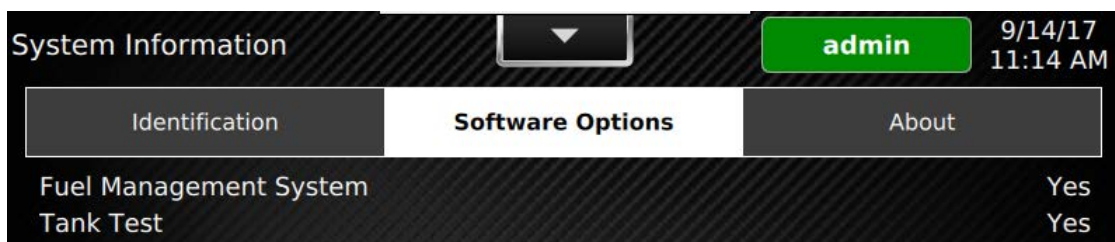
Slope (Tank Testing Reports): A ratio of the calculated rate of change to the time the rate is measured. Slope is affected by leaks and by many other sources of interference. A negative slope or decrease indicates loss of product volume. A positive slope or increase indicates a rise in product volume.



Testing Requirements

To perform this test, the SCALD® software must be enabled. To verify that the software is enabled:

1. Starting at the Home screen, open the Quick Jump Menu.
2. Click System>System Information>Software Options.
3. Under Software Options, Tank Testing will appear. A “yes” in the Enabled column indicates that the software has been purchased and is enabled.



Test Scheduling

SCALD® works by collecting quiet intervals in-between dispensing. A “QI” is obtained when a thermally stable tank is idle for 20 minutes with no dispensing, no deliveries and no other movement of the probe floats. Once four QIs are collected, the console will analyze the data and either Pass, Fail, Incomplete, or Abort that test. The four QIs can be collected over a period of several days or weeks.

Test Results

Pass: A passing result ensures the integrity of the tank is good.

Fail: Test failure will be indicated by a Warning light and/ or annunciator. Additionally, a report may print (if the console is programmed to do so, see the *EVO™ 200 and EVO™ 400 Automatic Tank Gauges Programming Guide* (FFS p/n 228180015).

Abort: The result is due to variations in float level and/ or product temperature that are outside the leak test threshold. This may be caused by:

- Dispensing
- Rapid Temperature Change
- Delivery
- Product Lower than the lowest RTD (Resistance Temperature Detector)
- Theft
- Pump Started
- Loss of Probe Signal

Incomplete:– When the test does not collect enough data before the programmed time limit, the test is Incomplete. When it is necessary to obtain valid results for compliance reasons, start the test manually.

Reasons why the test might not complete

- No Quiet Time.
- SCALD® needs four 20 minute QIs in order to complete a test. These QIs are normally found in the early morning hours. If the site is so busy that there are no 20 minute periods of no dispensing, then SCALD® will not be able to complete a test.
- Temperature Instability.
- If a site is receiving deliveries frequently and the temperature of the fuel being delivered is several degrees hotter/colder than the fuel in the tank, SCALD® will not be able to collect data due to thermal instability interrupting quiet time. The temperature of the fuel cannot change more than .01° F during a 20 minute QI.
- If a pump control relay is stuck closed and the pump is running all of the time, the temperature in the tank may be much higher than in the other tanks. Due to this high temperature and the fact that the pump is running, no QIs will be collected.

NOTE: On rare occasions, conditions can arise that prevent SCALD® from getting enough QIs to complete a test.

Viewing results

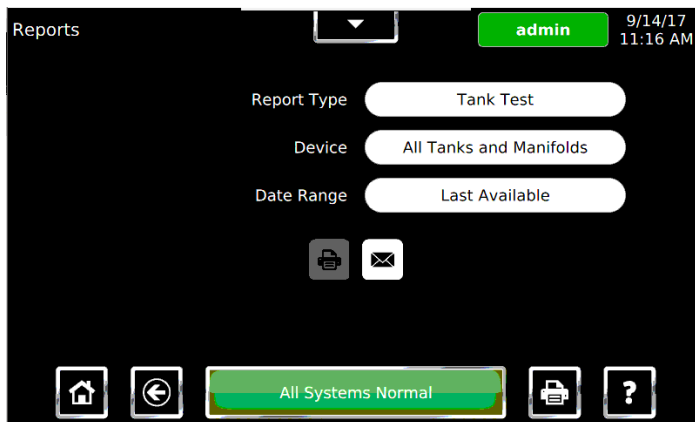
From the Quick Jump menu, click Applications>Compliance>Tanks (Monthly).

Tank Leak Test Reports

Reports that contain leak testing data and results may be printed from the console or generated and printed using TSA.

Printing Tank Leak Test Reports

1. Open the QJM, and click Applications>Reports.



2. From the Report Type menu select either the Tank Test (for static reports) or SCALD® for continuous reports.
3. For Device, select a specific Tank or Manifold, or All Tanks and Manifolds.
4. Select the Date Range desired.
5. Select the printer button to print.

Sample Tank Leak Test Report

The following is an example of an External Tank Leak Test Report from Web Browser Interface:

Example External Tank Leak Test Report from Web Browser Interface

Site ID 1

Site ID 2

Site ID 3

Site ID 4

Site ID 5

Last Available

Tank Test Report

Date Time

STATIC TEST										
TANKS										
Name	Max Capacity		Time	Gross Volume	Net Volume	Product Level	Temperature	Water Level	Water Volume	
Tank #	###									
	Started		Date Time	##	##	##	##	##	##	##
	Ended		Date Time	##	##	##	##	##	##	##
	Last Delivery		Date Time	Test Type	(Monthly)	Leak Rate	###	Result	(Pass)	
	Threshold		Programmed	Capacity	###					
	Net Volume			Temperature		Level	Time			
	###			###		###	Date Time			
	###			###		###	Date Time			
###			###		###	Date Time				

Site ID 1

Site ID 2

Site ID 3

Site ID 4

Site ID 5

Last Available

Tank Test Report

Date Time

SCALD TEST											
TANKS											
Name	Product	Max Capacity									
Tank #	Product #	###									
			Started	Date	Time	Result	(Pass)	Slope	##	Status	###
			Ended	Date	Time	Volume Quality Percent	##	Test Type	(Monthly)		

Web Browser Interface

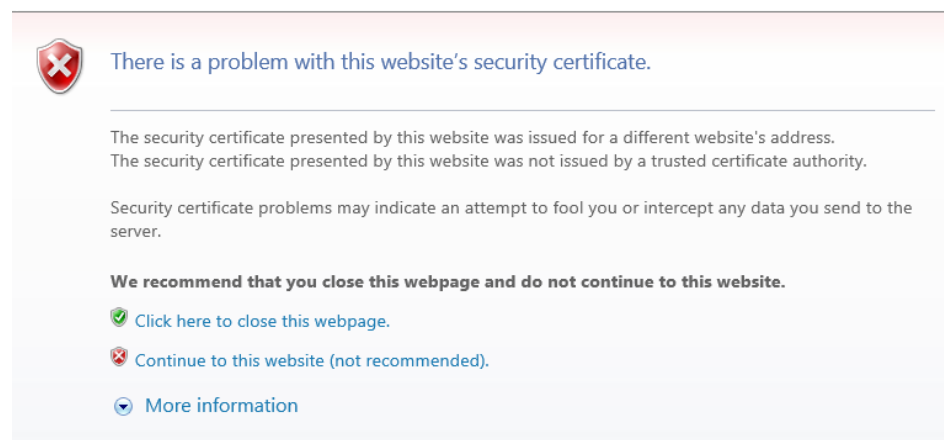
One of the most powerful advantages of an EVO™ 200 or EVO™ 400 ATG is its standard Ethernet port and ability to communicate with web browsers through web pages using standard XML (eXtensible Markup Language) protocols. The Web Browser Interface (FFS PRO CONNECT) allows the ATG to directly connect to a computer through a local area network or high speed internet connection. Using the Web Browser Interface, your console can be accessed from a computer with a web browser program. Contact your local FFS distributor for more information if you are not using this feature.

Using the Web Interface

IMPORTANT: Enter "https://" before you enter an IP address.

To access the console using a remote computer, you will need to know the IP address that has been assigned to it. This address should be provided by the installer. For direct connections not part of a network, the default IP address is "https://192.168.168.168." Open your internet browser, and in the address bar, enter "https://" and the IP address of the console. (You should bookmark or add this page to your favorites in your browser.)

When logging into your console you may receive a website security certificate message. Choose the option of Continue to this website when necessary.



NOTE: The above message may appear differently depending on the web browser being used.

You will be prompted to enter information for User and Password. Administrative access is required for full functionality within the web interface.

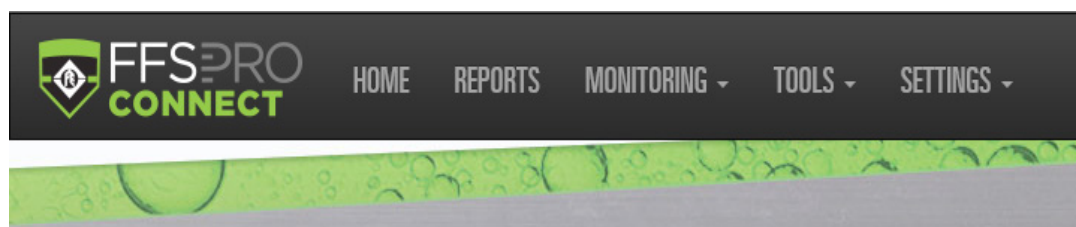
User

Password

LOGIN

Once the home page is loaded, you can navigate through the various web pages created by the console to view fuel management and compliance data, generate reports that can be printed from your PC and access control functions for starting tank and tests and dealing with alarms. The information found in FFS PRO CONNECT is the same data that can be accessed from the LCD touch screen.

Navigation Bar



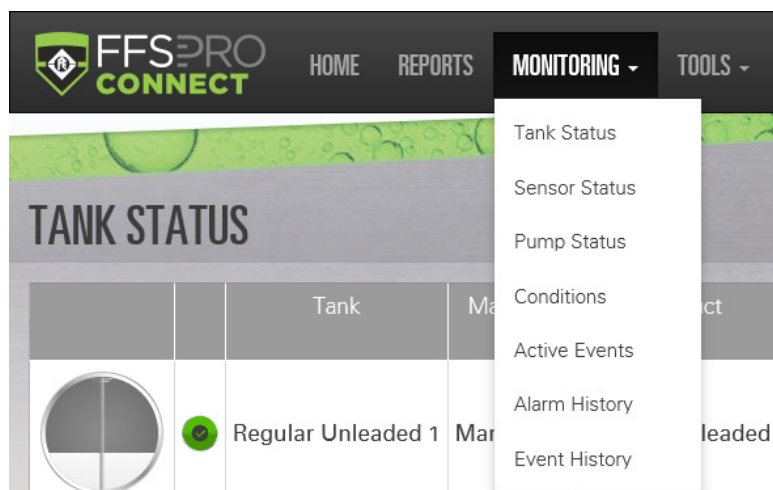
HOME

Click HOME to open the HOME page defined in the configuration for the User. Each User can select the HOME page of their choice.

REPORTS

Click REPORTS to choose and generate reports you can download.

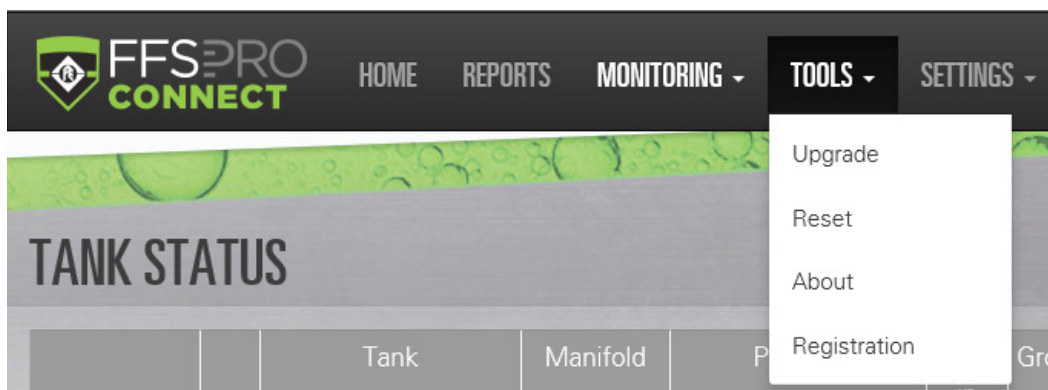
MONITORING



Click MONITORING to open a drop-down list of the following items:

- Tank Status shows a summary of tank information.
- Sensor Status shows a summary of sensor information.
- Pump Status shows a summary of pump information.
- Conditions shows the status of configured conditions.
- Active Events shows current active events.
- Alarm History shows a complete history of alarms.
- Event History shows a complete history of events that are not alarms.

TOOLS



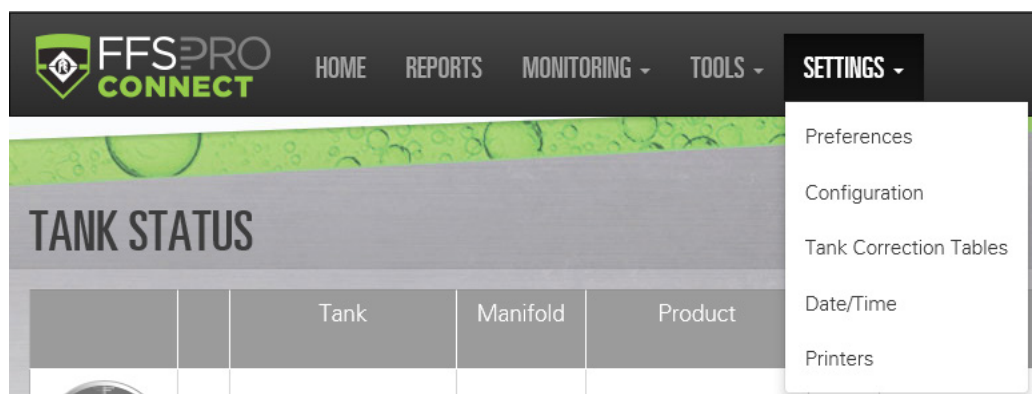
Click TOOLS to open a drop-down list of the following items:

- Upgrade allows an FFS certified technician to upgrade the firmware.
- Reset allows the user to Reboot the System, Erase historical data, or Erase all configuration and historical data.

IMPORTANT: Choosing Erase historical data deletes all historical information. Choosing Erase all configuration and data deletes all historical information and all system configuration programming. Only an FFS certified contractor should perform these tasks under direction from FFS Technical Support.

- About shows the Device ID, Firmware ID, and Release Version of the ATG.
- Registration allows an FFS certified technician to upgrade the system registration, such as Add SCALD® Option.

SETTINGS



Click SETTINGS to open a drop-down list of the following items:

- Preferences allows users to define Passwords, Language Preference, Home Web Page, and Unit Preferences.
- Configuration is used by an FFS certified technician to configure the ATG for operation.
- Tank Correction Tables allows users to configure tank chart correction points, download and upload tank correction charts, and start the autocalibration process. (Dispenser reconciliation is required for autocalibration.)
- Date/Time allows users to program the appropriate data and time.
- Printers allows users to identify a network printer.

How to Manually Start Leak Tests Using the Console Interface

1. Open your web browser and connect to the site
2. Select the QJM>Applications>Tanks. Select a specific Tank and select Control.
3. From the drop-box, select the type of test (Monthly or Annual) you want to perform for each tank.
4. Click on Start Leak Tests on the Action Bar.

Maintenance

As a user or owner, there is limited maintenance you need to perform on the ATG. To keep the unit in good, serviceable condition, follow the procedures outlined below.

⚠ WARNING: Do not attempt to open the console unless you are a certified Franklin Fueling Systems technician. Electrical hazards exist and injury or death may occur if the console interior is accessed by unauthorized personnel.

Console Care

Carefully wipe the outer areas of the console with a soft, damp cloth to remove any residue or build-up. Some chemicals may damage the protective cover on the LCD display. Avoid spraying the console with anything directly. Cords and cables routed from the inside and bottom of the console could contain electricity. Use caution in these areas to avoid shock. Ensure that data communications and electrical energy lines are segregated so that electrical interference will not be induced into data transmission lines, or erroneous data returns could result.

LCD Touch Screen

Calibration

If the touch screen does not appear to be accurately registering “touches,” it may need to be calibrated. To calibrate the touch screen function of the display, you must first access the calibration application.

NOTE: If you are unable to navigate to the Tools menu to calibrate, reboot the console, wait for the Loading Status Bar to be full, and then press and hold the LCD touch screen for ten seconds.

1. From the Quick Jump Menu, select Tools and then Calibrate TouchScreen.
2. You will be asked if “you are sure,” answer Yes.
3. Follow the on-screen instructions to complete the calibration process.

Intentionally Blank

Alarms and Troubleshooting

For all alarms conditions, the troubleshooting steps provided in this chapter are suggested actions to take in the event of an alarm. Follow all site policy procedures set by local governing agencies in the case of a spill, leak, or malfunction. If the steps provided by this manual or the site policy are followed and the system still requires additional support, contact Franklin Fueling Systems Technical Services.

Alarms are listed in sections for System Alarms, VRM Alarms, FMS Alarms, SCM Alarms, Wire Sensor Alarms, LLD Alarms, TPI Alarms, Printer Alarms and Miscellaneous Alarms.

System Alarms

Displayed Alarm/Warning	Device	Description	Recommended Actions
AC Input Alarm	None	An input on the AC input module has been configured as an alarm and is active	Check the programming and voltage inputs for the specified Input channel on the AC Input module
Invalid Configuration	None	The configuration that has been loaded is not valid.	Verify the file type of the configuration which is being uploaded.
Invalid Registration	None	The registration that is loaded is not valid.	If you have upgraded the site before, use the upgrade tool to restore the former registration. If you have not upgraded the site before, contact FFS Technical Services for support.
IO Input Alarm	None	An input on the Input/Output module has been configured as an alarm and is active.	Check the programming and voltage inputs for the specified Input channel on the IO module.
Probe is Offline	Slot	Probe Module is not communicating with the console.	Follow safety procedures before working inside the console. Visually verify a steady green "Run" light. If red "Err" light is flashing or steady, re-seat module and reboot system. If the condition still exists, contact Franklin Fueling Systems' Technical Support for help on this issue.
Probe Setup Error	None	Programming errors made during setup of the Probe Module.	Verify Probe Module programming parameters. If the condition still exists, contact Franklin Fueling Systems' Technical Support for help on this issue.
Set Date and Time	None	System detected an issue with the date and time	Check and set the system date and time.

FMS Alarms

Displayed Alarm/Warning	Device	Description	Recommended Actions
Alpha volume correction error	Tank	This error is caused by a programming mistake in the Special Products section.	Verify Special Product Alpha volume correction program parameters. Contact FFS Technical Services Department for assistance.
Annual Compliance Alarm	Any	The device listed has gone out of compliance	Pass a test or clear the alarm on the device.
Annual Compliance Warning	Any	The device listed has 7 days before it will go into a compliance alarm	Pass a test or clear the alarm on the device.
API volume correction error	Tank	This error is caused by a programming mistake in the Special Products section.	Verify Special Product API volume correction program parameters. Contact FFS Technical Services Department for assistance.
Correction table error	Tank	Level and Volume mismatch detected in Correction table programming.	Verify that all levels and volumes are entered accurately into the Correction Table programming.
Density float error	Tank	A communication error has occurred involving the density float.	Verify programming and contact FFS Technical Services for support.
Density error	Tank	The density of the product is not within specifications.	Enter setup and verify the information under density in the probe programming.
Float height error	Tank	This error could indicate that the wrong float type is installed or that a programming error has occurred.	Review probe programming for proper float type, number of floats in the tank. (This would be an idea time to clean the probe and floats).
Float Missing	Tank	Probe detects a lesser number of floats than programmed	Review probe programming for correct number of floats. If correct then inspect probe shaft, floats, and float magnets. With the probes out of the tank, this would be an idea time to clean the probe and floats. If pressures meets requirements specified, contact Franklin Fueling Systems' Technical Services Dept. for support on this issue.
FMS configuration error	None	Conflicts exist within FMS Application programming.	Verify FMS setting are correct in accordance with the site specifications.
High product level	Tank	Product level exceeded High limit set. Possible close to tank overflow condition	Acquire an accurate product level. If actual product level in tank does not match the consoles displayed current level, verify programming is correct.
High product volume	Tank	The specified tank has reached the programmed High Product Volume.	Check product volume and compare to the programmed High Volume alarm Limit in the setup menu. Acquire an accurate product level and compare to the ATG. If levels differ, verify programming is correct. If alarm persists, contact FFS Technical Services for support.

Displayed Alarm/Warning	Device	Description	Recommended Actions
High High product volume	Tank	The specified tank has reached the programmed High High Product Volume.	Check product volume and compare to the programmed High High Volume alarm Limit in the setup menu. Get an accurate product volume and compare to the ATG. If levels differ, verify programming is correct. If alarm persists, contact FFS Technical Services.
High water level	Tank	Water level exceeded High limit set.	Verify programmed level. If water is too high consult you local site policy procedures for corrective actions.
High Water/Phase Sep	Tank	Water/Phase Separation has exceeded the High Limit set.	Remove Water/Phase Separated product form the tank.
Level error	Tank	Product level exceeds tank diameter due to an error in console of programming.	Verify tank, offset, and probe programming.
Low product volume	Tank/ Manifold	Product volume below Low limit set. The tank/ manifold specified may be near empty.	Acquire an accurate product volume. If actual product volume in tank does not match the consoles displayed current volume, verify programming.
Low low product volume	Tank/ Manifold	Product volume below Low Low limit. The tank or manifold specified may be near empty.	Acquire an accurate product volume, and if does not match the consoles displayed current volume, verify programming.
Mag installation error	Sensor	The specified TSP-DMS has an installation error	Check the installation of the TSP-DMS, the sensor must be plumb. If installation is correct, then try to relearn the sensor. If the problem persist, the sensor may need to be replaced
Mag product alarm	Sensor	The specified TSP-DMS has detected product.	Inspect the sump for the presence of product.
Mag sensor configuration error	Sensor	An error has been detected in the configuration of the specified TSP- DMS.	Enter into the setup and inspect the TSP-DMS setup.
Mag sensor data error	Sensor	There is an error with the reported data from the specified TSP-DMS	Inspect wire
Mag sensor float height error	Sensor	The float height has exceeded the limits as learned.	Inspect wire
Mag sensor float missing	Sensor	The specified TSP-DMS is not reporting the level information for one or more float.	Inspect the Mag sensor for damage and redo the connections. If the Problem persists, contact FFS Technical Services.
Mag sensor missing	Sensor	The console is not receiving any information from the specified TSP-DMS.	Inspect wire connections at the Mag sensor. If the problem persists, contact FFS Technical Services.
Mag sensor not learned error	Sensor	The specified TSP-DMS was not properly learned.	Enter into the Control > Mag Sensor screen and have the console learn the sensor.

Displayed Alarm/Warning	Device	Description	Recommended Actions
Mag sensor synchronization error	Sensor	The console is receiving incomplete or improperly timed data from the specified TSP-DMS	Inspect wire connections at the Mag sensor. If the problem persists, contact FFS Technical Services.
Mag water alarm	Sensor	The specified TSP-DMS has detected water.	Inspect the sump for water.
Mag water warning	Sensor	The TSP-DMS has detected water above the preset limit.	Inspect the sump for water.
Manifold Delivery Detected	Tank	A delivery has been detected on the specified manifold.	This is not an alarm and should only be a concern if there was not a delivery to the site at the specified date and time.
Manifold Gross Leak Detected	Tank	A leak in the specified manifolded tanks has been detected via a SCALD® test. Suspect possible leak.	Review Tank Leak Test History and programming.
Manifold Leak Detected	Tank	A leak in the specified manifolded tanks has been detected via a SCALD® test. Suspect possible leak	Review Tank Leak Test History and programming.
Manifold low product volume	Tank	The specified manifold has reached the programmed Low Product Volume	Check product volume and compare to the programmed Low Volume alarm Limit in the setup menu. Acquire an accurate product volume and compare to the ATG. If levels differ, verify programming is correct. If alarm persists, contact FFS Technical Services for support.
Manifold low low product volume	Tank	The specified manifold has reached the programmed Low Low Product Volume	Check product volume and compare to the programmed Low Low Volume alarm Limit in the setup menu. Acquire an accurate product volume and compare to the ATG. If levels differ, verify programming is correct. If alarm persists, contact FFS Technical Services for support.
Manifold Leak Detected	Tank	A leak in the specified manifolded tanks has been detected via a SCALD® test. Suspect possible leak.	Review Tank Leak Test History and programming.
Manifold Theft Detected	Tank	The specified manifold has entered Sentinel Mode and detects product leaving the tank that exceeds the programmed theft limits.	Verify programming and accurate level / volume readings.
Monthly Compliance Alarm	Any	The device listed has gone out of compliance	Pass a test or clear the alarm on the device.

Displayed Alarm/Warning	Device	Description	Recommended Actions
Monthly Compliance Warning	Any	The device listed has 7 days before it will go into a compliance alarm.	Pass a test or clear the alarm on the device.
Net error	Tank	Product net levels exceed tank diameter	Verify tank, product offset and probe programming
No data available	System	A communication issue has occurred between the probe and the console	Check for proper probe programming at the console and inspect wire connections at the probe. If the problem persists, contact FFS Technical Services for support.
No probe detected	Tank	The Console is not receiving any communication from the probe.	Check for proper probe programming at the console and inspect wire connections at the probe. If the problem persists, contact FFS Technical Services for support.
Probe synchronization error	Tank	Communication between the probe and the Console is either incomplete or ill timed.	Check for proper probe programming at the console and inspect wire connections at the probe. If the problem persists, contact FFS Technical Services for support.
Product volume error	Tank	The Product Volume as reported by the probe has exceeded the limits of the tank.	Check for proper probe and tank programming at the console. If programming is correct, inspect the probe to ensure that the float is not stuck in the riser or is otherwise obstructed.
RTD table error	Tank	RTD distance error; Special Probe programming error.	Verify correct RTD programming. If issue still exists, inspect wiring to probe. If the condition still exists, contact Franklin Fueling Systems' Technical Services for support.
System memory error	System	The system has detected a low memory situation.	Contact FFS Technical Services for support.
Tank Gross Leak Detected	Tank	Tank Gross leak test detected tank. Suspect possible leak.	Review tank leak test history and programming.
Tank Leak Detected	Tank	Tank leak detected. Suspect possible leak.	Review tank leak test history and programming.
Tank Product Density High Limit Exceeded	Tank	The Product Density exceeds the programmed high limit.	Verify programming if correct this alarm may be an indication of improper density of the fuel.
Tank Product Density Low Limit Exceeded	Tank	The Product Density has exceeded the programmed low limit.	Verify programming if correct this alarm may be an indication of improper density of the fuel.
Tank SCALD® Leak Detected	Tank	SCALD® leak test detected tank leak. Suspect possible leak.	Review Tank Leak Test History and programming. Refer to page 17 for more information on SCALD® tests.
Tank Delivery Detected	Tank	A delivery has been detected on the specified tank.	This is not an alarm and should only be a concern if there was not a delivery to the site at the specified date and time.

Displayed Alarm/Warning	Device	Description	Recommended Actions
Tank Water/Phase Sep Float Disabled	Tank	The Phase Separation Water Float has been disabled in setup	Verify Phase Separation Water Float level and enable the float in setup.
Tank Theft Detected	Tank	Product used in Sentinel Mode exceeds theft limit set. Suspect theft, and then verify theft limit in programming.	Verify theft limit in programming. Also obtain an accurate product level and compare to inventory.
Temperature error	Tank	Special Probe RTD temperature error detected.	Verify correct RTD table programming. If problem still exists, suspect wiring or faulty probe.
Ullage error	Tank	Ullage reported has exceeded tank capacity.	Check for proper probe and tank programming at the console. If programming is correct, inspect the probe to ensure that the float is not stuck in the riser or obstructed. Bring the probe inside and wire directly to the gauge to eliminate possible problems with the field wiring.
Unstable probe	Tank	LL Liquid Level probes can send inconsistent data back to console.	Check for proper probe programming at the console and inspect wire connections at the probe. If the problem persists, contact FFS Technical Services for support.
Water volume error	Tank	Water volume has exceeded tank capacity.	Check for proper probe and tank programming at the console. If programming is correct, inspect the probe to ensure that the colored water float is on the bottom.

Liquid Sensor Alarms

Displayed Alarm/Warning	Device	Description	Recommended Actions
Sensor On		Sensor shows alarm status.	Inspect location for presence of liquid. In the case of a leak, follow site policy procedures. If no liquid is present, and alarm still exists, sensor may be tripped on error. Check wiring continuity from sensor to console. Test sensor at console, trip sensor on purpose. Verify console terminal wiring. If issue still exists, inspect wiring to sensor. Contact Franklin Fueling Systems' Technical Services for support.
Sensor Data Error		Console has received erroneous data from sensor.	Check wiring continuity from sensor to console. Test sensor at console, trip sensor on purpose. Verify console terminal wiring. If issue still exists, inspect wiring to sensor. If the condition still exists, contact Franklin Fueling Systems' Technical Services for support.
Sensor Dry Well		Monitoring well is dry.	Visually verify that the alarm is correct.
Sensor High Brine		Brine solution has tripped high level brine sensor.	Verify actual level of solution and sensor installed location.

Displayed Alarm/Warning	Device	Description	Recommended Actions
Sensor Low Brine		Brine solution has tripped low level brine sensor.	Verify brine level and sensor location.
Sensor ID Error		Discriminating sensor is given an improper ID.	Verify sensor programming and Auto configuration.
Sensor No Signal		Console is not receiving data from a discriminating sensor.	Verify programming of sensor type and wiring connection.
Sensor Product		Discriminating sensor has detected product present at location.	Visually inspect location carefully for presence of liquid. In the case of a leak, follow site policy procedures. If no liquid is present, and alarm still exists, sensor may be tripped on error. Check wiring continuity from sensor to console.
Sensor Pwr Short		Liquid sensor malfunction.	If a 2-wire sensor is used on a 3-wire module ensure that the red/pwr terminal is not used. If a 3-wire sensor is used, disconnect wires and see if alarm clears. If alarm clears inspect shorts in wiring. If alarm stays at PWR short replace module. Contact Franklin Fueling Systems' Technical Services Dept. for support.
Sensor On		Liquid sensor shows alarm status.	Inspect location for presence of liquid. In the case of a leak, follow site policy procedures. If no liquid is present, and alarm still exists, sensor may be tripped on error. Check wiring continuity from sensor to console. Test sensor at console, trip sensor on purpose. Verify console terminal wiring. If issue still exists, inspect wiring to probe. If the condition still exists, contact Franklin Fueling Systems' Technical Services for support.
Sensor Sump Full		Liquid sensor detected sump full of liquid.	Inspect location for presence of liquid. In the case of a leak, follow site policy procedures. If in alarm with no liquid is present, sensor may be tripped on error. Check wiring continuity from sensor to console.
Sensor Sync Error		Liquid sensor data signals not in sync with module.	Verify correct wiring and re-make the connections. Verify sensor type.
Sensor Vapor		Discriminate sensor detecting vapors at location.	Visually inspect area for product presence. Verify the vapor level has been calibrated correctly.
Sensor Water		Discriminate sensor detecting water at location.	Visually inspect area for water presence.

TPI Alarms

Displayed Alarm/Warning	Device	Description	Recommended Actions
Capacitor Failing	TPI	The STP controller is reporting a capacitor failure.	Refer to the applicable Smart controller Installation guide for details.
Clogged Intake	TPI	The STP controller has reported a dry run condition but the associated tank shows a product level above the intake.	Ensure proper programming of the TPI and calibration of the Smart Controller. If correct, check for an obstruction on the PMA.
Communication Failure	TPI	Communication from the TPI to the STP controller has failed. The Console is seeing the controller but the controller is not responding to commands.	Verify all wiring connections. Call FFS Technical Services Department for support.
Controller Type Error	TPI	The programmed controller type does not match what the console is detecting.	Verify proper programming of the TPI as well as the Smart controller type and address.
Dry Tank	TPI	The STP Controller has reported a dry run condition and the tank level is at or below the programmed intake.	Ensure proper programming of the TPI and calibration of the Smart Controller. If correct, add fuel.
Extended Run	TPI	The STP controller is reporting an extended run condition.	Refer to the applicable Smart Controller Installation guide for details.
Hardware Fault	TPI	The STP controller is reporting is reporting a hardware fault condition.	
High Temperature	TPI	The STP controller is reporting a high temperature condition.	
Locked Rotor	TPI	The STP controller is reporting a locked rotor rating.	
Not Calibrated	TPI	The STP controller is reporting that it has not been calibrated.	
Open Circuit	TPI	The STP controller is reporting an open circuit condition.	
Over Speed	TPI	The STP controller is reporting an over speed condition.	
Over Voltage	TPI	The STP controller is reporting an over voltage condition.	
Pump Communication Fail	TPI	Communication from the TPI to the STP controller has failed.	Check all wiring connections and ensure that there is power supplied to the Smart Controller.
Pump In Water	TPI	The water level has risen to within 3 inches of the programmed intake level.	Ensure proper programming of the TPI and calibration of the Smart Controller. If correct, have water removed from the tank

Displayed Alarm/Warning	Device	Description	Recommended Actions
Relay Fault	TPI	The STP controller is reporting a relay fault error.	Refer to the applicable Smart Controller Installation guide for details.
Short Circuit	TPI	The STP controller is reporting a short circuit condition.	
Unbalanced Load	TPI	The STP controller is reporting an unbalanced load condition.	
Unbalanced Voltage	TPI	The STP controller is reporting an unbalanced voltage condition.	
Under Voltage	TPI	The STP controller is reporting a voltage level under 200 VAC.	
Under Load	TPI	The STP controller is reporting an underload condition.	Check fault condition on Smart controller and contact FFS Technical Services for more information
Unknown Fault	TPI	The STP controller is reporting an unknown fault code.	





Department of Environmental Protection

2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form: 62-761.900(9)

Form Title: Storage Tank Equipment

Registration Form

Effective Date: January 2017

Incorporated in Rule 62-761.850, F.A.C.

Storage Tank Equipment Registration Form

Fill out completely

General Information

Company Name: Franklin Fueling Systems

Contact Name: Sandy Adams

Company Address: 3760 Marsh Rd

City: Madison, WI.

Zip: 53718

E-mail: sadams@franklinfueling.com

Contact Number: 1-608-838-5668

Product Name: EVO Series ATG

Model Number(s): EVO200, EVO400

Product Type: Automatic Tank Gauging System

Rule(s) citation within Chapter 62-761, or 62-762, F.A.C. that registration is being requested: _____

62-761.600, 62-761.601 F.A.C.

Write a brief description of equipment registration request including product limitations:

EVO™ 200 & EVO™ 400 Automatic Tank Gauges (ATGs) provide highly accurate inventory management and containment monitoring for small to mid-size fuel systems. Both ATGs feature the capability to interface with probes and sensors in any combination up to 6 (EVO™ 200) or 14 (EVO™ 400).

Information Checklist

	Yes	No	N/A
1. Third-party Certification by a Nationally Recognized Testing Laboratory?	☒	☐	☐
2. Documentation of third-party evaluation that the equipment meets DEP Rules?	☒	☐	☐
3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?	☒	☐	☐
4. Installation instructions included?	☒	☐	☐
5. Technical information and drawings included?	☒	☐	☐
6. Annual Operability Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702 F.A.C.)?	☒	☐	☐
7. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?	☒	☐	☐
8. Has the product been approved or registered in other countries or states? (If so provide list)	☒	☐	☐
9. Any requirements for company-certified installers or trainers?	☒	☐	☐
10. Was this product(s) previously approved or registered by the Department?	☐	☐	☒
If yes, please specify the Equipment Number: <u>EQ-_____</u>			
	☐	☐	☒
11. Any changes or modifications to the equipment since the last submittal to DEP?	☐	☐	☒

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Tanknotify@dep.state.fl.us, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399.

Write a brief description of equipment installation and performance in the U.S.:

Installation and programming of the EVO™ 200 & EVO™ 400 ATGs requires a Franklin Fueling Systems certified technician and should be performed in accordance with any local, state, or federal regulations. The ATGs should be mounted in a location that is classified as non-hazardous and at a level for convenient access. Once installed and programmed the system will monitor and report on configured devices, providing details and reports regarding the status of those configured device.

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

Matthew Kirby, Product Support Engineer, FFS

Printed Name and Title

Matthew S. Kirby

Signature

3/4/2018

Date

For Department Use Only:

Date Application Received: 3/5/2018-Renew 3/6/2023

Application complete:

Yes: ☒ No: ☐

EQ- 890

Date of complete or incomplete letter sent: 3/6/2018

Date of entry to the DEP Equipment Registration List: 3/6/2018

Model

EVO200/400

Schedule

Annually

Maintenance Procedure

1. Verify that the Power light is on. If the system has a display, verify that it is functional.
2. Identify and address any WARNINGS or ALARMS. For specific information on WARNINGS or ALARMS, refer to the Alarms and Troubleshooting Section of the EVO200 and EVO400 Automatic Tank Gauges Operation Guide, Part No. 228180016. ALARMS can be an indication of a potentially hazardous situation. If conditions cannot be cleared, contact a service company.
3. Stick each tank and verify that the levels coincide with the inventory levels indicated on the EVO200.400. If the inventory levels indicated on the EVO200.400 do not coincide with the levels indicated with a manual tank stick, contact a service company.
4. If the EVO200.400 is connected to an external printer, follow the instructions in the EVO200 and EVO400 Automatic Tank Gauges Operation Guide, Part No. 228180016 to print any applicable Regulatory, Tank Test Reports, or Sensor Status Reports. Confirm that the test results show that all applicable devices are within compliance.
 - a. If an external printer is not connected, site compliance can also be checked by navigating to Applications/Compliance and checking the status of the associated devices. Refer to the EVO200 and EVO400 Automatic Tank Gauges Operation Guide, Part No. 228180016 for detailed information.



Internet link to the Franklin Fueling Systems, FFS PRO University, online training website.

<https://university.ffspro.com/en/online-training/>

Prerequisite training:

Fueling System Safety: <https://university.ffspro.com/en/online-training/safety/fueling-system-safety/safety-training-test/>

Product Specific Training:

EVO200 and EVO400 Installation Training:
<https://university.ffspro.com/en/online-training/additional-training/evo-200-evo-400-installation/evo-200-evo-400-installation-test/>



EVO™ 200 & EVO™ 400 AUTOMATIC TANK GAUGES

EVO™ 200 & EVO™ 400 Automatic Tank Gauges (ATGs) provide highly accurate inventory management and containment monitoring for small to mid-size fuel systems. Both ATGs feature the capability to interface with probes and sensors in any combination up to 6 (EVO™ 200) or 14 (EVO™ 400). Their simple setup and operation, remote connectivity, and advanced security features protect your fuel system while keeping you directly connected to vital site data whenever, and wherever. The highly-intuitive, full-color, icon-based touch screen provides user-friendly on-site access to inventory, alarm, and compliance data, while the FFS PRO™ Connect web interface provides remote access from any web device.

HIGHLIGHTS

- Allows you to make informed, data-driven inventory management decisions while keeping your site in compliance and protected from security threats.
- Provides inventory monitoring, static and continuous tank testing, tank autocalibration, inventory reconciliation, and containment compliance monitoring.
- Streamlined setup and programming includes hardware auto-detection and wiring confirmation, extensive multipoint tank charting, network printer auto-detection, and the ability to copy and paste or move sections of the programming profile within the ATG or download and upload entire programming profiles from one ATG to another.
- Customizable user roles and log-in security features protect against unwanted access while keeping track of user activity within your system.
- Stores 5 years worth of critical data to provide back-up security from power outages or other system interruptions.
- Intuitive full-color 7" touch screen interface provides simplified on-site access features including:
 - One Touch buttons that are custom programmed to carry out common automated tasks with a single tap.
 - Quick Jump menu allows you to quickly maneuver from application to application using a single button.
 - Select your home screen, program your product colors, and customize your favorites screen - customize the interface the way you want it.
- FFS PRO™ Connect web interface allows you to directly connect to your ATG from any web enabled device that automatically scales for tablets and smart phones.
- Optional Wifi allows secure and protected on-site viewing of inventory levels for fuel delivery drivers.
- Available with optional 24 hour statistical continuous automatic leak detection (SCALD) and the industry's only Turbine Pump Interface (TPI) capability for enhanced and automated submersible turbine pump control.

SPECIFICATIONS

- Maximum tanks monitored: 6 (EVO™ 200) / 14 (EVO™ 400)
- Maximum sensor input capacity: 6 (EVO™ 200) / 14 (EVO™ 400)
- Total # of inputs: 6 (EVO™ 200) / 14 (EVO™ 400)
- Dry contact input channels: 2
- Relay output channels: 2
- Connectivity: Ethernet, RS-232, RS-485, standard USB, mini USB, and Wifi (optional)
- Display type: 7" (17.78 cm) color LCD touch screen
- Printer type: External (network or USB)
- Alarm: Internal audible alarm
- LEDs: Alarm, warning, and power
- Tank chart correction points: 7,500
- Applicable liquids: Petroleum, chemicals, and waste
- Level units: Inches, centimeters, and millimeters
- Volume units: gallons or liters (mass with density option)
- Power requirements: 110 to 240 VAC, 50/60 hz, 2.6 Amps
- Operating temperature: 32° to 104 °F (0° to 40 °C)
- Humidity: 0-90% non-condensing
- Dimensions: Height: 8" (205mm), Width: 13 3/4" (350mm), Depth: 3 1/4" (83mm)

Capabilities

- High/low product, water, and temperature alarm set points
- Inventory reconciliation / tank autocalibration (optional)
- Density, mass, and phase separation measurement
- Email and SMS notifications
- Back-up generator monitoring

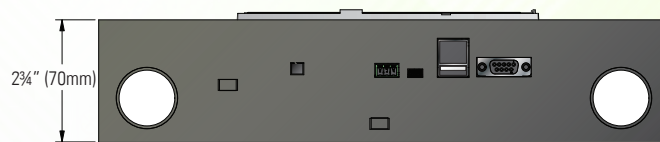
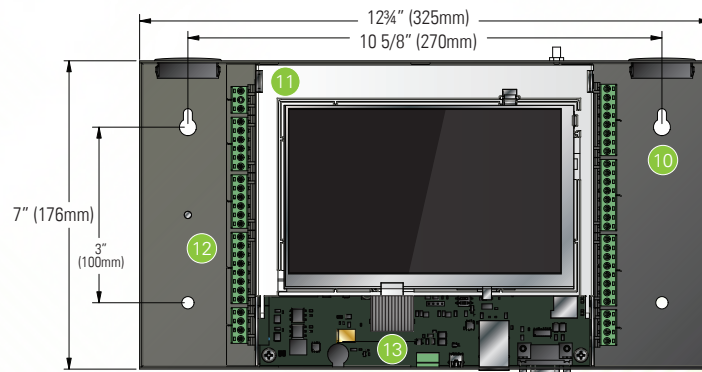
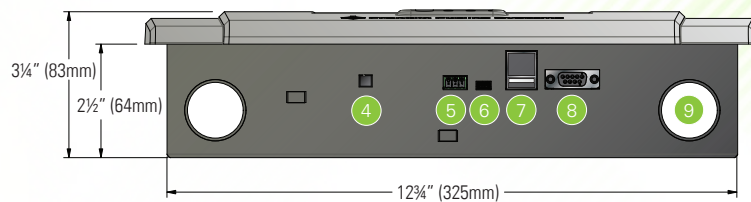
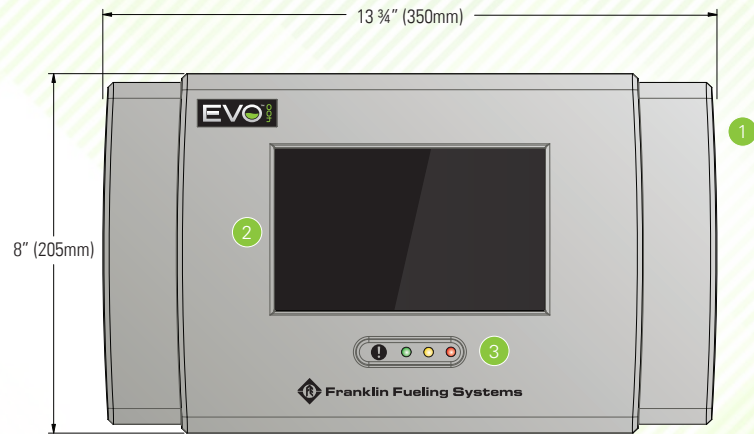
Approvals/Certifications

- UL, cUL, ATEX, IECEx

SPECIFICATIONS CONTINUED

Components

- 1 Cover
- 2 LCD touch screen
- 3 LED indicators
- 4 Annunciator (audible alarm)
- 5 RS-485
- 6 Mini USB port
- 7 Ethernet / USB port
- 8 RS-232
- 9 Knockouts
- 10 Mounting holes
- 11 Flip up panel (touch screen)
- 12 Termination blocks
- 13 Main board



ORDERING INFORMATION

Ordering Guide

ATG model, software and hardware options can be listed separately or combined when ordering. Systems shipped from the factory will list the combined part number. Complete part numbers have a specific order and are created using the following guidelines:

EVOX DW - TR**EVOX = Base Model Options**

EVO200 = EVO™ 200 base model, up to 6 channels

EVO400 = EVO™ 400 base model, up to 14 channels

DW = Hardware Options (choose all that apply)

D = Display (color LCD touch screen)

W = Wifi

TR = Software Options (choose all that apply)

T = SCALD 24-hour tank testing

R = Reconciliation/Autocalibration

Example: EVO400DW-TR = EVO™ 400 base model, up to 14 channels with display, with Wifi, with SCALD, and with Reconciliation/Autocalibration.

EVO™ 200 & EVO™ 400 Base Models

Model	Description
EVO200	EVO™ 200 base model automatic tank gauge, up to 6 channels
EVO400	EVO™ 400 base model automatic tank gauge, up to 14 channels

EVO™ 200 & EVO™ Hardware & Software Options

EVO™ 200 and EVO™ 400 ATGs come standard with the ability to perform in-tank static leak detection. The following software and hardware options can be added to customize your ATG. The internal hardware options will be factory installed when ordered with the ATG.

Internal Hardware Options

Model	Description
FMP-LCD	(D) Display (color LCD touch screen)
FMP-WIFI	(W) Wifi

Internal Software Options

Model	Description
TS-TT	(T) Statistical Continuous Automatic Leak Detection, 24 hour continuous tank testing software
TS-TRAC	(R) Tank inventory reconciliation and autocalibration

External Printer

Model	Description
FMP-ETP	External printer, includes USB cable, power cord, one roll of thermal printer paper, and wall mount hardware
FMP-EPPC	Case of 25 thermal printer paper rolls

Note: The external printer measures 142mm X 132mm X 204mm (w x h x d) and can be mounted to wall next to the EVO™ Series ATG using the included hardware).



Franklin Fueling Systems

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EU-TYPE EXAMINATION CERTIFICATE



Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

EU-Type Examination Certificate Number: **DEMKO 17 ATEX 1902 Rev. 0**

Product: **Automatic Tank Gauge System, Model UDP, ANA, or 485 followed YZZDW**

Manufacturer: **Franklin Fueling Systems Inc./Intelligent Controls**

Address: **34 Spring Hill Road, PO Box 638, Saco, ME 04072 USA**

This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **4787742355**

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012+A11:2013

EN 60079-11:2012

If the sign "X" is placed after the certificate number, it indicates that the product is subject to special conditions for safe use specified in the schedule to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

The marking of the product shall include the following:

II (1) G [Ex ia Ga] IIA

Certification Manager

Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2017-09-29

Notified Body

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com



[13]

[14]

Schedule

EU-TYPE EXAMINATION CERTIFICATE No.

DEMKO 17 ATEX 1902 Rev. 0

[15]

Description of Product

These automatic tank gauges (ATG) have control panels with or without a touch screen, and are to be mounted only in a non-hazardous area. A computer or peripherals may be connected to the external Class 2 ports of the device (e.g., USB, RS-232, Ethernet), in the non-hazardous area.

Nomenclature

The nomenclatures for the ATG models are as follows:

XXX Y ZZ D W
1 2 3 4 5

1	Base Model Number	UDP(A, B, C)	UDP(D, E, F)	ANA(A, B, C)	485(D, E, F)
2	Y – Number of relays on Main PCB	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays	A - 4 relays B - 2 relays C - 0 relays	D - 4 relays E - 2 relays F - 0 relays
3	ZZ – Number of I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	6 - 6 I.S. Output Pairs 14 - 14 I.S. Output Pairs	4 - 4 I.S. Output Pairs 8 - 8 I.S. Output Pairs	2 - 2 I.S. Output Pairs 4 - 4 I.S. Output Pairs
4	D – Display Option	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD	D – With LCD (Blank) – Without LCD
5	W – Wireless Option	W – With wireless communications	W – With wireless communications	W – With wireless communications	W – With wireless communications

Temperature range

The ambient temperature range is -20 °C to +40 °C.

Electrical data

Input=XXX Main PCB=(Y)	UDP (A, B, C)	UDP (D, E, F)	ANA (A, B, C)	485 (D, E, F)
U _o , V	27.51	10.5	27.51	10.71
I _o , A	0.153	0.156	0.099	0.563
L _o , mH	1.4	1.4	1.4	0.5
C _o , uF	1.04	1.04	1.04	6.3
P _o , W	1.05	0.41	0.68	1.22

[16]

Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. 8 on page 1 of this EU-Type Examination Certificate.

[17]

Specific conditions of use:

N/A

[18]

Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information

OR



The trademark label.

will be used as the company identifier on the marking

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

Accredited by DANAK under registration number 7011 to certification of products.



Information Pertaining to the EVO200 and EVO400 certifications in other countries and states.

At this time, the EVO 200 and EVO 400 are not specifically certified in any states or countries. However, the device has been certified by the following regulatory agencies.

Underwriters Laboratories

Certificate Number: 20170929-MH16589

IECEX

Certificate Number: IECEX UL 17.0059

ATEX

Certificate Number: DEMKO 17 ATEX 1902 Rev. 0

Franklin Fueling Systems

Franklin Fueling Systems EVO400, EVO200 with
FMP-DDS-U Discriminating Dispenser Sump Sensor and FMP-DTS-U Discriminating Turbine
Sump Sensor

INTERSTITIAL DETECTOR (LIQUID-PHASE)

Detector:

Output Type: qualitative
Sampling Frequency: continuous
Operating principle: float switch

Test Results:

	unleaded gasoline	diesel*	E85	water/E85 20%/80% upper/lower	water/E85 80%/20% upper/lower	water/E85 30%/70% upper/lower
FMP-DDS/ DTS						
Detection time (min)	6.5	54.3	7.7	6.0	16.2	5.8
Fall time (min)	<20	<60	<20	<20	<20	<20
Lower Detection Limit (in)	0.125	0.125	0.125	0.125	0.125	0.125
	<u>water</u>					
FMP-DDS						
Detection time (min)	<1					
Fall time (min)	<1					
Threshold Level						
Low level (in)	1.0759					
High level (in)	7.4706					
FMP-DTS						
Detection time (min)	<1					
Fall time (min)	<1					
Threshold Level (in)						
Low level (in)	1.0678					
High level (in)	10.9636					

Manufacturer and evaluator claim that sensors will respond to any liquid. Evaluations determined these sensors' responses to the liquids shown above. *Biodiesel blends B6-B20 meeting ASTM D7467 and biodiesel B100 meeting ASTM D6751 would also produce an alarm if the sensor threshold is exceeded. Responses to these fuels were not determined, but would be expected to be very similar to the diesel responses.

Comments:

Sensors can be removed, cleaned and reinstalled if an alarm is triggered or if the sensor is periodically tested. . The DDS and DTS sensors contain an identical product sensitive strip that triggers a product alarm when exposed to any type of fuel. The top and bottom floats of both types of sensors detect the presence of liquid and an alarm will be generated if the liquid rises above the threshold of either float. When the product sensitive strip was tested in each of the three mixtures of water/E85, the DDS and DTS sensors went into alarm when subjected to the top and lower layers of water/E85. For the upper layer containing hydrocarbon, the DDS sensor indicated a product alarm as designed for each of the 20%, 30% and 70% of the water/E85 mixture. For the lower layer of each of the 20%, 30% and 70% of the water/E85 mixtures, the 20% mixture indicated a product alarm after a short period of time, while the 30% and 70% mixtures indicated a water alarm when the threshold of the bottom float was exceeded but did not detect the presence of product after a period of 24 hours.

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URL: www.franklinfueling.com

Evaluator: Ken Wilcox Associates
Tel: (816) 443-2494
Dates of Evaluations: 06/19/2017



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Issue Date: February 1, 2018

Franklin Fueling Systems

INCON EVO 200 and EVO 400 consoles

(INCON FMP-LL3 Magnetostrictive Digital Probe)

AUTOMATIC TANK GAUGING METHOD

Certification	Leak rate of 0.2 gph with PD = 99.94% and PFA = 1.006%. Leak rate of 0.1 gph with PD = 97.20% and PFA = 2.76%.
Leak Threshold	0.1 gph for leak rate of 0.2 gph. 0.05 gph for leak rate of 0.1 gph. A tank system should not be declared tight if the test result indicates a loss or gain that equals or exceeds this threshold.
Applicability	Gasoline, diesel, aviation fuel, fuel oil #4, biodiesel blends B6-B20 meeting ASTM D7467, biodiesel B100 meeting ASTM D6751.
Tank Capacity	Maximum of 30,000 gallons for leak rate of 0.2 gph. Maximum of 20,000 gallons for leak rate of 0.1 gph. Tank must be between 50 and 90% full.
Waiting Time	Minimum of 5 hours 20 minutes between delivery and testing for leak rate of 0.2 gph. Minimum of 5 hours 20 minutes between delivery and testing for leak rate of 0.1 gph. None between dispensing and testing. There must be no delivery during waiting time.
Test Period	Length of the test is determined automatically based on quality of test data. Average data collection time during evaluation was 5 hours 21 minutes for leak rate of 0.2 gph. Average data collection time during evaluation was 4 hours 39 minutes for leak rate of 0.1 gph. Test data is acquired and recorded by system's computer. Leak rate is calculated from data determined to be valid by statistical analysis. There must be no dispensing or delivery during the test.
Temperature	Probe contains 5 thermistors to monitor product temperature. At least one thermistor must be submerged in product during testing.
Water Sensor	Must be used to detect water ingress. Minimum detectable water level in the tank is 0.208 inches.
Calibration	Thermistors and probe must be checked and, if necessary, calibrated in accordance with manufacturer's instructions.
Comments	Not evaluated using manifolded tank systems. Therefore, this certification is only applicable when there is a probe used in each tank and the siphon is broken during testing. Tests only portion of tank containing product. As product level is lowered, leak rate in a leaking tank decreases (due to lower head pressure). Consistent testing at low levels could allow a leak to remain undetected. EPA leak detection regulations require testing of the portion of the tank system which routinely contains product. EVO 200 can support up to 6 tanks. EVO 400 can support up to 14 tanks.

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Dates of Evaluation:
10/05/2017 (20,000 gallons)
10/06/2017 (30,000 gallons)



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Franklin Fueling Systems

Franklin Fueling Systems EVO400, EVO200 with
FMP-DIS-U Discriminating Interstitial Sensor and FMP-EIS-U Electro-Optical Interstitial
Sensor

INTERSTITIAL DETECTOR (LIQUID-PHASE)

Detector:

Output Type: qualitative
Sampling Frequency: continuous
Operating principle: conductivity, electro-optic

Test Results:

	unleaded gasoline	diesel*	waste oil	water	E85
FMP-DIS					
Detection time (min)	<1	<1	<1	<1	<1
Fall time (min)	<1	<1	<1	<1	<1
Threshold Level (in)	0.4293	0.4397	0.4208	0.4594	0.4240
FMP-EIS					
Detection time (min)	<1	<1	<1	<1	<1
Fall time (min)	<1	<1	<1	<1	<1
Threshold Level (in)	0.4478	0.4430	0.4317	0.4566	0.4507

Manufacturer and evaluator claim that sensors will respond to any liquid. Evaluations determined these sensors' responses to the liquids shown above. *Biodiesel blends B6-B20 meeting ASTM D7467 and biodiesel B100 meeting ASTM D6751 would also produce an alarm if the sensor threshold is exceeded. Responses to these fuels were not determined, but would be expected to be very similar to the diesel responses.

Comments:

Sensors can be removed, cleaned and reinstalled if an alarm is triggered or if the sensor is periodically tested. The FMP-DIS sensor uses two conductive pins to detect whether the liquid is water or fuel. When tested in three mixtures of water/E85 (i.e., 20%/80%; 30%/70%; and 70%/30%), the FMP-DIS sensor went into alarm when subjected to the upper and lower layers of water/E85. For the upper layer containing hydrocarbon, the DIS sensor indicated a product or alarm as designed. For the lower layer of liquid, the DIS sensor indicated a "water" alarm.

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Franklin Fueling Systems

Franklin Fueling Systems EVO400, EVO200 with
FMP-HIS-U Hydrostatic Interstitial Float Sensor, and FMP-HIS-XL-U Hydrostatic Interstitial Float
Sensor

INTERSTITIAL DETECTOR (LIQUID-PHASE)

Detector:

Output Type: qualitative
Sampling Frequency: continuous
Operating principle: float switch

Test Results:

	<u>brine</u>
FMP-HIS	
Detection time (min)	<1
Fall time (min)	<1
Threshold Level	
Low level (in)	1.0167
High level (in)	7.3218
FMP-HIS-XL	
Detection time (min)	<1
Fall time (min)	<1
Threshold Level	
Low level (in)	0.9895
High level (in)	10.8398

Manufacturer and evaluator claim that sensors will respond to any liquid. Evaluations determined these sensors' responses to the liquids shown above. *Biodiesel blends B6-B20 meeting ASTM D7467 and biodiesel B100 meeting ASTM D6751 would also produce an alarm if the sensor threshold is exceeded. Responses to these fuels were not determined, but would be expected to be very similar to the diesel responses.

Comments:

Sensors can be removed, cleaned and reinstalled if an alarm is triggered or if the sensor is periodically tested.

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Dates of Evaluations: 06/19/2017



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Franklin Fueling Systems

Incon TS-1001/2001, TS-5, TS-550, TS-5000, TS-550 evo, TS-5000 evo, EVO400, EVO200, and S940 Alarm Console with FMP-ULS Universal Liquid Sensor, FMP-UHS Universal Hydrostatic Sensor, FMP-ULS-C Universal Liquid Sensor Chemical, FMP-ULS-PS Universal Liquid Sensor Position Sensitive sensors

INTERSTITIAL DETECTOR (LIQUID-PHASE)

Detector:

Output Type: qualitative

Sampling Frequency: continuous

Operating principle: float/reed switch

Test Results:

	unleaded gasoline	Diesel*	Biodiesel*	Water	E85	Brine
FMP-ULS						
Detection time (min)	<1	<1	<1	<1	<1	
Fall time (min)	<1	<1	<1	<1	<1	
Threshold Level (in)	1.0155	0.9944	0.9925	0.8775	1.0198	
FMP-UHS						
Detection time (min)	<1	<1	<1	<1	<1	<1
Fall time (min)	<1	<1	<1	<1	<1	<1
Threshold Level (in)	0.9602	0.9144	0.9218	0.9397	0.9397	0.7561
FMP-ULS-PS						
Detection time (min)	<1	<1	<1	<1	<1	
Fall time (min)	<1	<1	<1	<1	<1	
Threshold Level (in)	1.4915	1.4882	1.4758	1.3770	1.4962	
	<u>Lubrizol**</u>	<u>Afton**</u>				
FMP-ULS-C						
Detection time (min)	<1	<1				
Fall time (min)	<1	<1				
Threshold Level (in)	1.1707	1.1281				
FMP-ULS-PS						
Detection time (min)	<1	<1				
Fall time (min)	<1	<1				
Threshold Level (in)	1.4959	1.4290				

*Evaluations determined these sensors' responses to the liquids shown above. Biodiesel blends B6-B20 meeting ASTM D7467 and biodiesel B100 meeting ASTM D6751 would also produce an alarm if the sensor threshold is exceeded. Responses to these fuels were not determined, but would be expected to be very similar to the diesel responses.

** Manufacturer and evaluator claim that responses to Lubrizol 9888 and 9888C would be expected to be very similar to each other. Responses to Afton OTR 8332G. and OTR 8843G would be expected to be very similar to each other.

Comments:

Sensor TSP-UHS is the same as the TSP-ULS sensor except that the float has been inverted so that it may be used to monitor the brine reservoir of containment sumps. An alarm condition will occur when the fluid level drops below the end of the sensor. The FMP-ULS-PS is a position sensitive float switch that issues an alarm if not installed properly at the bottom of the intestinal or sump.

Sensors are reusable.

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Dates of Evaluations: 05/02/2017



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Issue Date: November 16, 2015
Revision Date: October 17, 2017

Franklin Fueling Systems

INCON T5 Series, TS-5, TS-550, TS-5000, TS-550evo, TS-5000evo, Colibri, EVO 200 and EVO 400 consoles with SCALD 3 (INCON TSP-LL2 and FMP-LL3 Magnetostrictive Probe)

CONTINUOUS IN-TANK LEAK DETECTION METHOD (Continuous Automatic Tank Gauging)

Certification	Leak rate of 0.2 gph with PD > 95% and PFA < 0.001%.
Leak Threshold	0.17 gph for single tanks at 95% PD. 0.155 gph for manifolded tank systems at 95% PD. 0.16 gph for single tanks at 99% PD. 0.135 gph for manifolded tank systems at 99% PD. A tank system should not be declared tight and a message printed for the operator, if the test results indicate a loss or gain that exceeds this threshold.
Applicability	Gasoline, diesel, aviation fuel, fuel oil #4, biodiesel blends B6-B20 meeting ASTM D7467, biodiesel B100 meeting ASTM D6751.
Tank Capacity	Maximum of 32,891 gallons for single tanks and for all tanks manifolded together.
Throughput	Monthly maximum of 445,408 gallons.
Waiting Time	None. The algorithm tests the data for stability and discards those before the tank is stable.
Test Period	Data collection time ranges from 5 to 26 days. Data sampling frequency is at least once per minute. System collects data at naturally occurring product levels without interfering with normal tank operation, and discards data from unstable periods when system performs test.
Temperature	Average for product is determined by a minimum of 5 thermistors.
Water Sensor	Must be used to detect water ingress. Minimum detectable water level in the tank is 0.208 inch (0.44 inch using model TSP-IGF4P). Minimum detectable change in water level is 0.011 inch (0.013 inch using model TSP-IGF4P).
Calibration	Thermistors and probe must be checked and, if necessary, calibrated in accordance with manufacturer's instructions.
Comments	The user configuring the system can select between 99% and 95% PD modes. System reports a result of "pass" or "fail". Evaluated using both single and manifolded tank systems with probes in each tank. Constant and variable leaks were mathematically induced into tight tank test records which were collected by systems installed at various active tank sites. The database for evaluation of the system includes sites with vapor recovery and blending dispensers. Tanks used in this evaluation contained gasoline and diesel. Tests only the portion of the tank containing product. As product level is lowered, the leak rate in a leaking tank decreases (due to lower head pressure). Consistent testing at low levels could allow a leak to remain undetected. EPA leak detection regulations require testing of the portion of the tank system which routinely contains product. Data from periods when the tank volume is below 14% of maximum are not used for leak detection.

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Dates of Evaluations: 09/14/15



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CERTIFICATE OF COMPLIANCE

Certificate Number 20170929-MH16589
Report Reference MH16589-20170731
Issue Date 2017-September-29

Issued to: INTELLIGENT CONTROLS INC
34 SPRING HILL RD
PO BOX 638
SACO ME 04072-0638

**This is to certify that
representative samples of**

CONTROL, MONITORING AND AUXILIARY EQUIPMENT
See Addendum.

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety:

Standard No. UL 913, Intrinsically Safe Apparatus and
Associated Apparatus for Use in Class I, II, and III, Division
1, Hazardous (Classified) Locations,
Standard No. CAN/CSA C22.2 No. 60079-0:15, "Explosive
atmospheres — Part 0: Equipment — General
requirements",
Standard No. CAN/CSA C22.2 No. 60079-11:14, "Explosive
atmospheres — Part 11: Equipment protection by intrinsic
safety "i",
Standard No. UL 1238, Standard for Control Equipment for
Use with Flammable Liquid Dispensing Devices,
Standard No. CAN/CSA C22.2 No. 142, Process Control
Equipment

Additional Information:

See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's
Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number 20170929-MH16589
Report Reference MH16589-20170731
Issue Date 2017-September-29

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

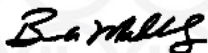
Associated Apparatus for use in Unclassified Locations.

Model UDP, followed by A, B, C, D, E, or F followed by 6 or 14, may be followed by D, may be followed by W, provides intrinsically safe outputs for use in Class I, Div. 1, Group D Hazardous Locations when installed in accordance with manufacturer's Control Drawing no. 228180006.

Model ANA, followed by A, B, or C, followed by 4, or 8, may be followed by D, may be followed by W, provides intrinsically safe outputs for use in Class I, Div. 1, Group D Hazardous Locations when installed in accordance with manufacturer's Control Drawing no. 228180006.

Model 485, followed by D, E, or F, followed by 2, or 4, may be followed by D, may be followed by W, provides intrinsically safe outputs for use in Class I, Div. 1, Group D Hazardous Locations when installed in accordance with manufacturer's Control Drawing no. 228180006.

I



Bruce Mahrenholz, Director North American Certification Program

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