



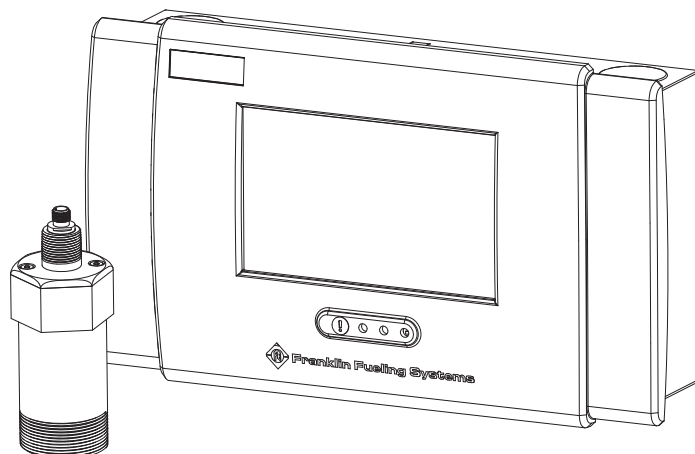
Franklin Electric
FUELING SYSTEMS

EVO™ LLD

INSTALL / GUIDE

10000019141 r1

MODEL
EVO-LLDS/#



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10000019141 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

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 TS-LS500 system, reference p/n **10000017648**, Electronic Line Leak Detection Featuring AUTO-LEARN® For EVO™ 600/6000/ELLDD.

1.1 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.

1.1.1 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: Industrial vehicles
	Warning: Electricity		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.
- 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

2.2.1 Station Owner or Operator

Save this guide for future use, and make sure to provide it to anyone who services this equipment.

2.2.2 Miscellaneous

Always reference the guide(s) that came with the equipment for the most current and complete list of installation and safety precautions.

2.3 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.

2.4 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

2.5 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.

3 Pre-Installation Overview

3.1 Upon Receipt of Item(s)

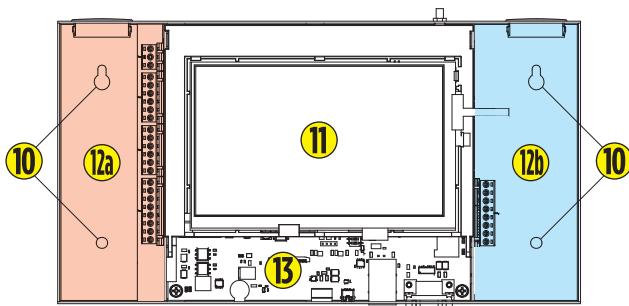
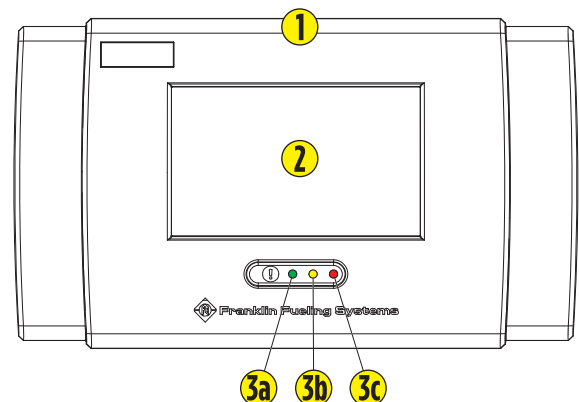
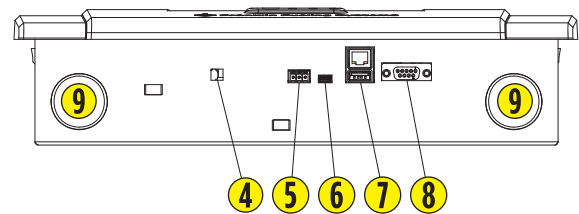
- Verify all items are in accordance with the order.
- Check all items for damage.
- If any item shows damage or is not in accordance with the order, inform Franklin Electric *immediately*.
- Remove the packaging material.
 - Follow all local laws, rules and regulations regarding disposal of discarded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

3.2 Materials Included

- (1) – EVO™ LLD Console
- (1) TS-LS500/#
 - (1) – 3.0 gph (11.4 lph) Leak Generator Kit (TS-ALCAL)
 - (#) – Needle Valve Kit(s) (TS-ALNIP)
 - (#) – Transducer(s) (TS-LSU500)
 - (#) – Transducer Cable(s)
 - (#) – Splice Connector Kit(s)

3.3 Technical Overview

3.3.1 Identifying Components

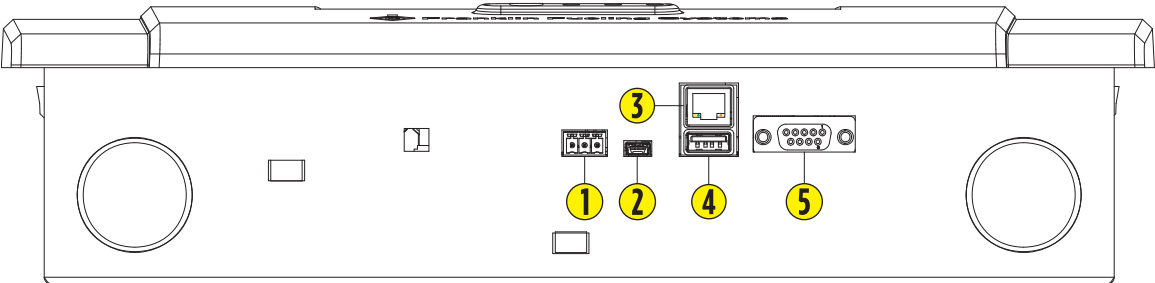


- | | | |
|-------------------------|---|--|
| 1. Cover | 4. Annunciator (audible alarm) | 10. Mounting Holes (4) |
| 2. LCD Touchscreen | 5. RS-485 / TPI | 11. Flip Up Panel (touchscreen) |
| 3. LED Indicators | 6. Mini B USB Port | 12. Termination Blocks |
| a. Power Supply (green) | 7. Ethernet /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

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).

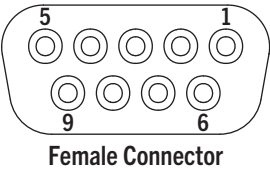
EVO™ LLD consoles have several communication ports which can be used to talk with various devices for a variety of applications. Some of these applications include connecting the EVO™ console to a computer network, printing reports on an external printer, and setting up Turbine Pump Interface™ (TPI). 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	RJ-45	Network
4	USB	USB-A	Printer, memory stick
5	RS-232 Comms 1	DB9 Female	Local PC with a null-modem cable

RS-232 Communication Connector

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

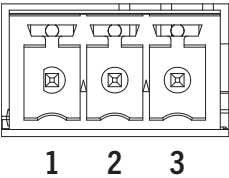


Pin Number*	Function	Input/Output
2	TD	O →→
3	RD	I ←
5	GND	

- Console RS-232 communication port 1.
- DB9 connector, Female, DCE.
- *Pins 1, 4 and 6–9 are not connected.

RS-485 Communication Connector

A connector is provided on the bottom of the console for the RS-485 interface. The pin names of the RS-485 connector are shown below:



PIN Number	Function
1	–A
2	+B
3	GND

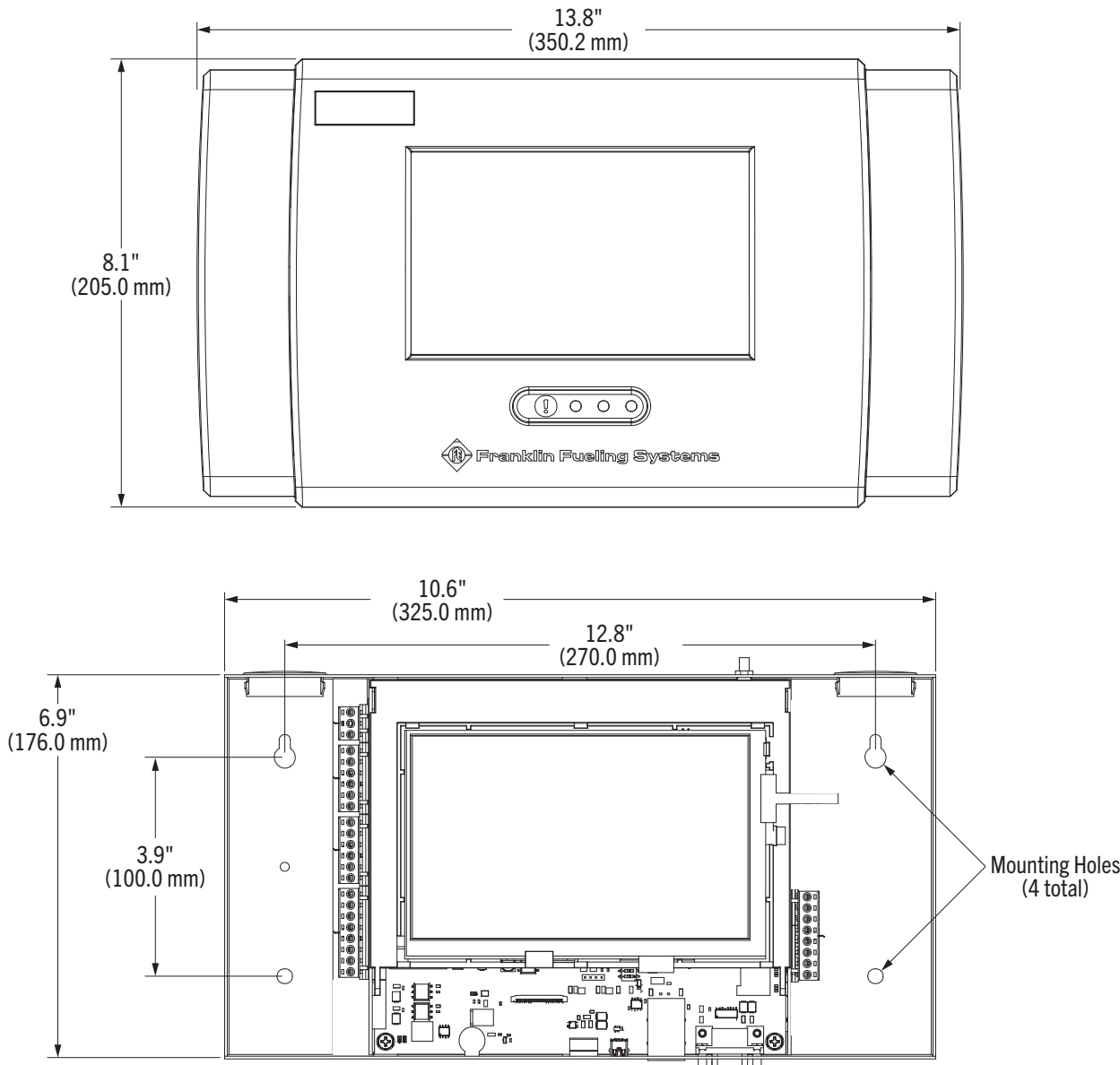
3.3.2 Specifications

NOTE: See § 5.2 for Certifications/Approvals.

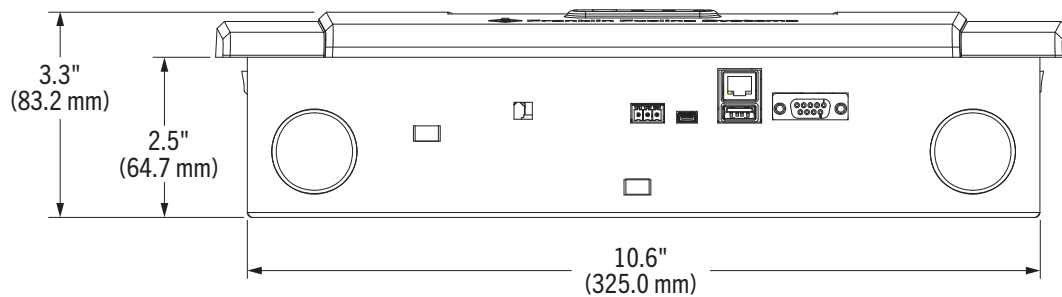
Feature	Description
Dimensions	See § 3.3.3
Weight	5.6 lbs (2.5 kg)
Operating Temperature	−40 to 140° F (−40 to 60° C)
Operating Humidity	0 to 95%, non-condensing
Operating Pressure	0 to 100 psi (0 to 6.89 bar)
Splash Resistance	Not to be exposed to direct spray, splash, or drips
Location	Indoors in a non-hazardous, pollution degree 2 environment per IEC60664
Relay Rating	2 A @ 240 V

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 TS-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, 60/50 Hz.
- All tanks are setup to prevent tank overfill 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. Overfill prevention measures must be put in place to prevent this setup from causing an overfill situation.

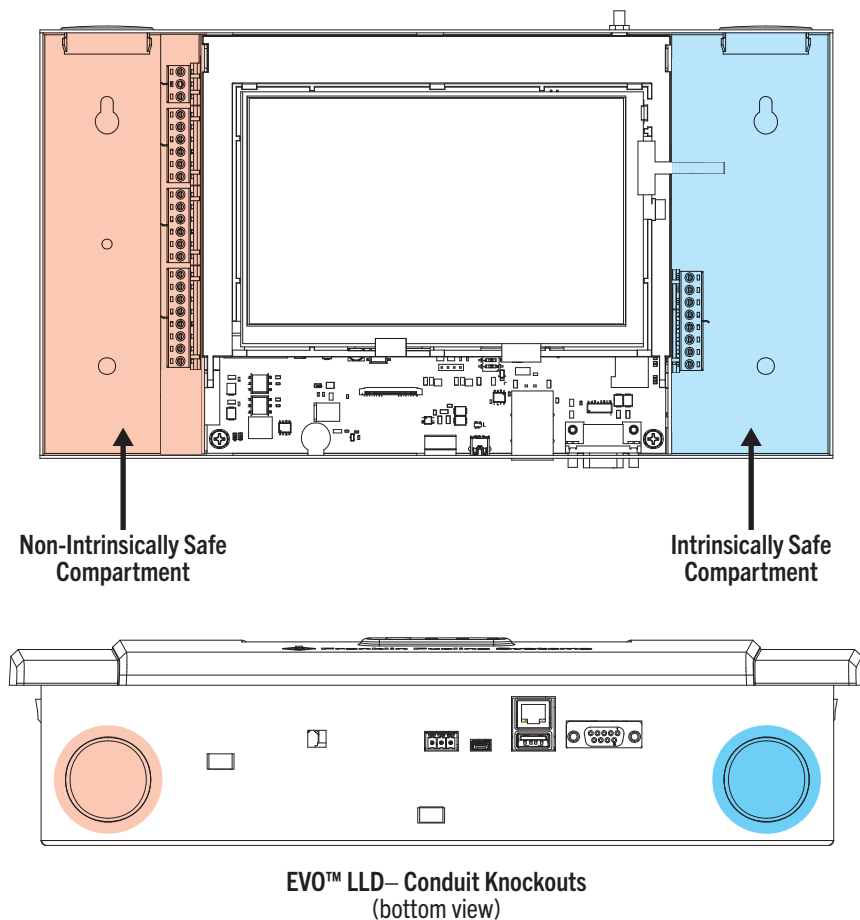
3.3.4.1 Conduit, Junction Box, and Field Wiring Requirements

⚠ CAUTION: Install field wiring, junction boxes, CableTight™ (or other code-approved conduit), EYS seal fittings, and splice connectors per the National Electrical Code (NEC), NFPA 70, NFPA 30A, and all other codes governing the installation of this product. Seal all threaded fittings and conduit threads to produce a weatherproof seal during installation/maintenance.

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

- Approved field wiring for LSU500 Transducers:
 - Belden™ 87760 for runs of up to 260' (79 m).
 - Belden™ 87761/88761 for runs of up to 400' (121 m).
 - Belden™ for runs of up to 1,000' (304 m).
 - Belden™ 89182 for runs of up to 1,500' (457 m).
 - & *approved equivalents*.

- 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 transducer 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 ATG console.



3.3.5 Required Tools & Consumables

- (4) – #10 or M5 fasteners capable of supporting the EVO™ LLD (up to 5.6 lbs (2.5 kg)) on the chosen mounting surface material.
- Screwdriver – Flathead
- Pliers – Slip-Joint
- Pipe Wrench
- Wrenches – Assorted sizes

4

Installation



⚠ 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.

⚠ CAUTION: Do not run intrinsically safe (IS) wiring and non-intrinsically safe (non-IS) wiring in the same conduit.

IMPORTANT:

- Follow all necessary safety steps as required by federal, state and local regulations in relation to working with electrical equipment.
- Always use safe electrostatic discharge practices when connecting/removing power.

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™ LLD 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" (minimum) of unobstructed area on all sides of the enclosure.
3. 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.
4. Drill four mounting holes suitable for the attaching hardware to be used in securing the EVO™ console to the mounting surface.
5. Fasten the EVO™ console to the mounting surface.

4.2 Wiring Instructions

⚠ WARNING:

- Ensure that the EVO™ console's power circuit breaker is turned off during any installation. Lethal voltages are present inside the console which could kill or injure people.
- 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 IS safety ground is not properly connected at the console, a dangerous condition will be created that could result in an explosion.

NOTE: Do not connect other equipment to this dedicated circuit. If other equipment is connected to this circuit, the resulting electrical noise could cause faulty system operation.

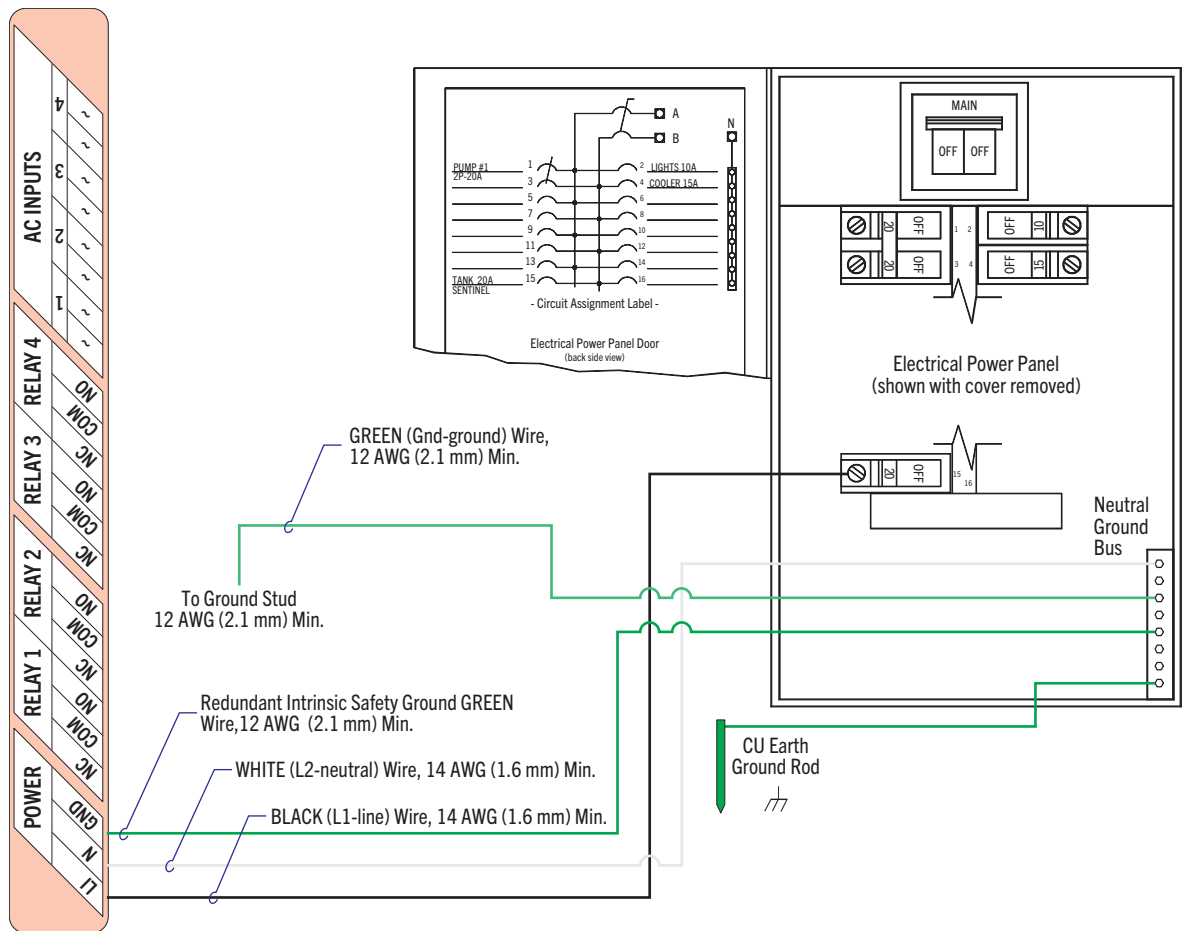
4.2.1 Console Power Supply

IMPORTANT: Do not connect other devices to this circuit.

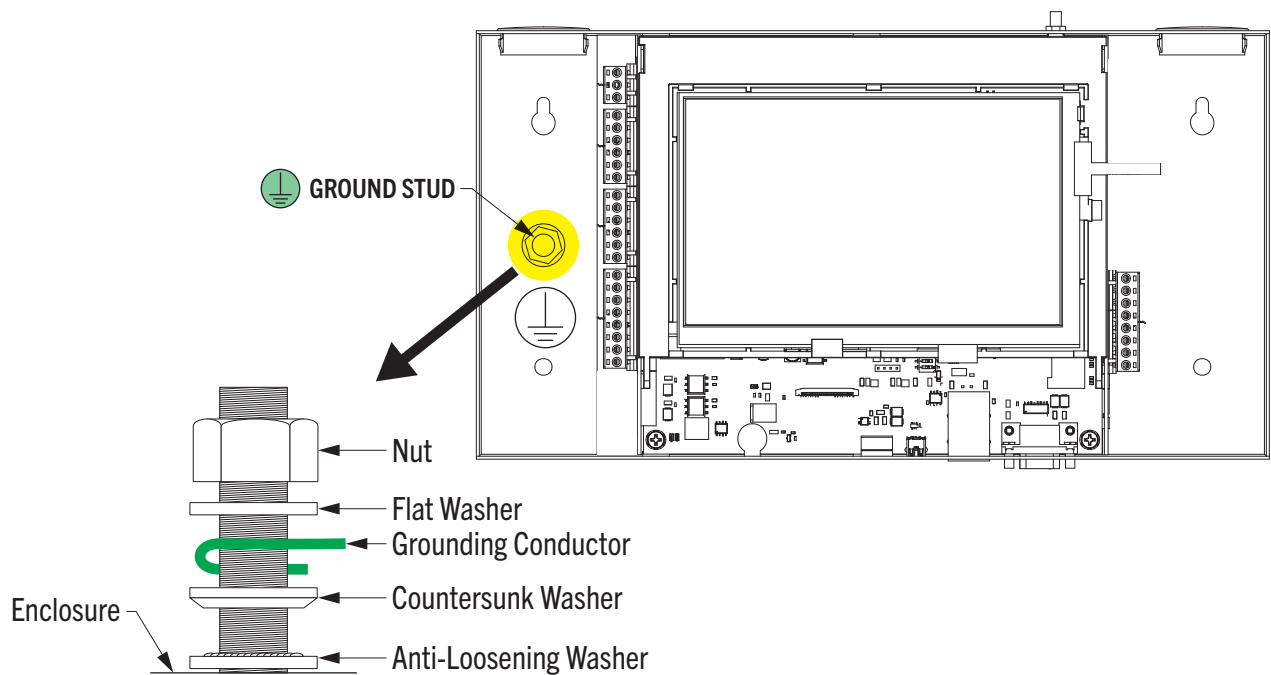
1. At the electrical power panel, locate or install a 20 amp circuit breaker.
 - This breaker should be dedicated to only supplying power to the EVO™ LLD console.
 - Mark this circuit “EVO™ LLD console [power] - ONLY” on the circuit label at the back of the electrical power panel door. Refer to the Wiring Requirements table and Power Wiring diagram below and the 110/240 VAC Line Power Wire Connection List below to wire the power connection.

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



2. 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.
3. Attach the ground wire to the grounding stud in the left compartment of the console.

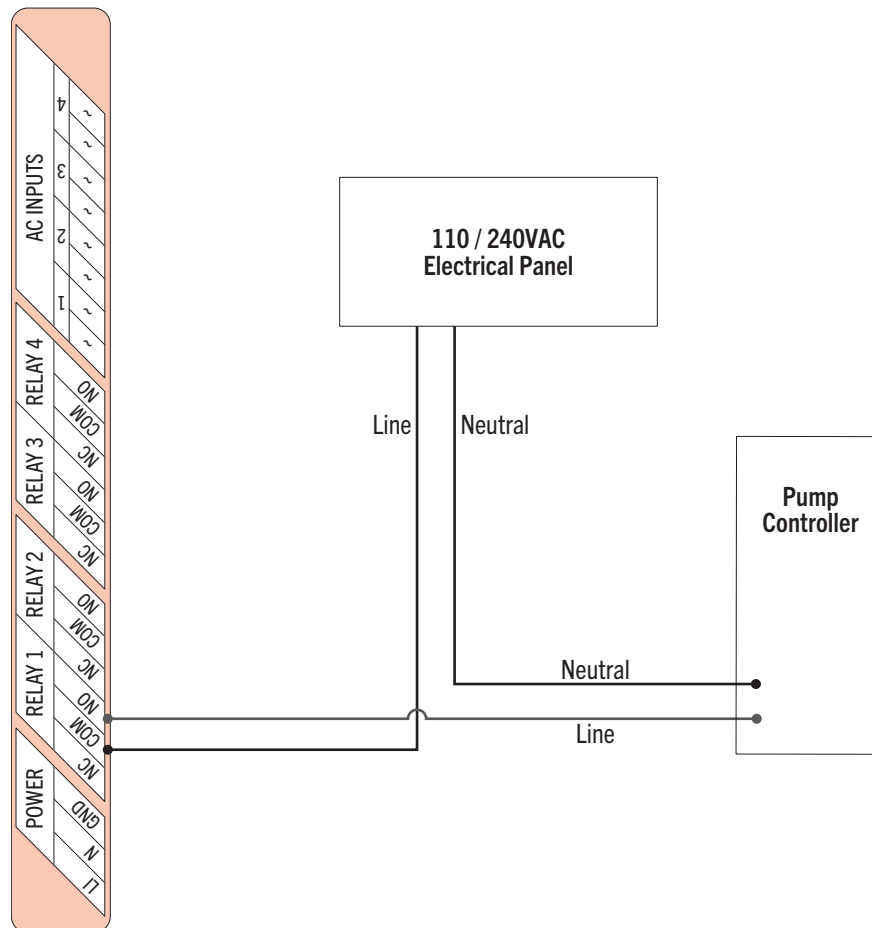


4.2.2 Relays

The EVO™ LLD console has four non-intrinsically safe, identical Form C output channels that can be used for pump controller or other generic relay output applications. Each channel has a fuse and three terminals and can be configured as normally open or normally closed with the power off by wiring to the appropriate terminals.

1. Wire the relay outputs per the following Relay Wiring diagram.

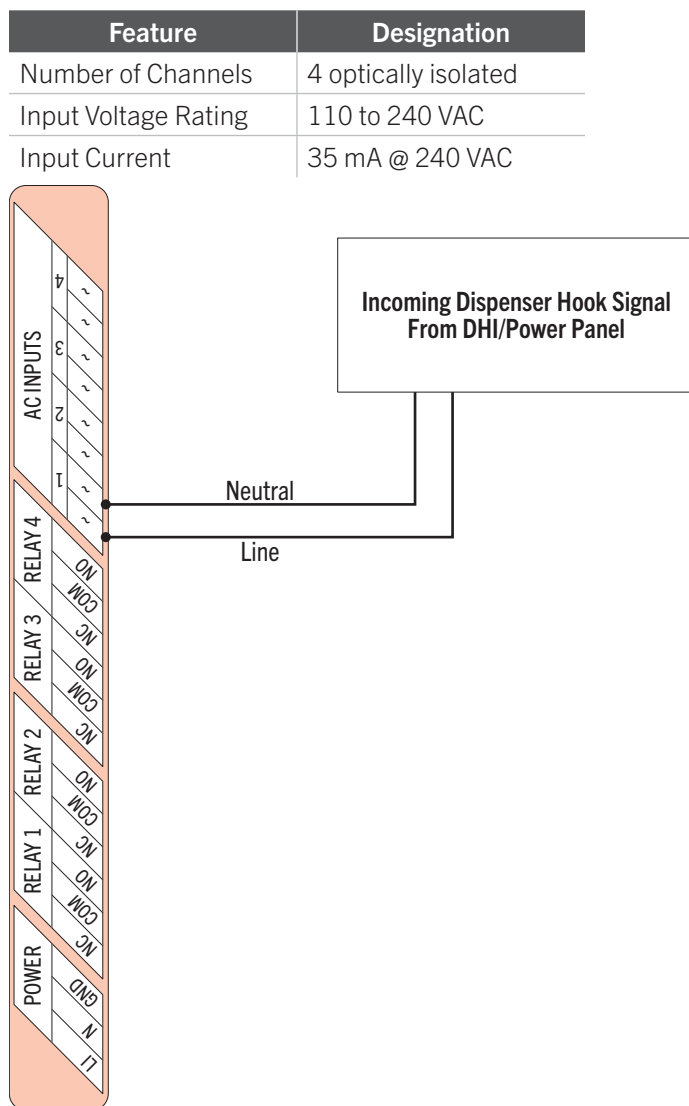
Feature	Designation
Number of Channels	4 Form C
Contact Rating	2 A @ 250 VAC 2 A @ 30 VDC



4.2.3 AC Inputs

The EVO™ LLD console has four non-intrinsically safe, optically isolated AC inputs that can be used for dispenser hook isolation or other generic AC input applications.

1. Wire the AC inputs per the following AC Input Wiring diagram.



4.2.4 Intrinsically Safe Inputs

IMPORTANT: See §4 precautions and notes.

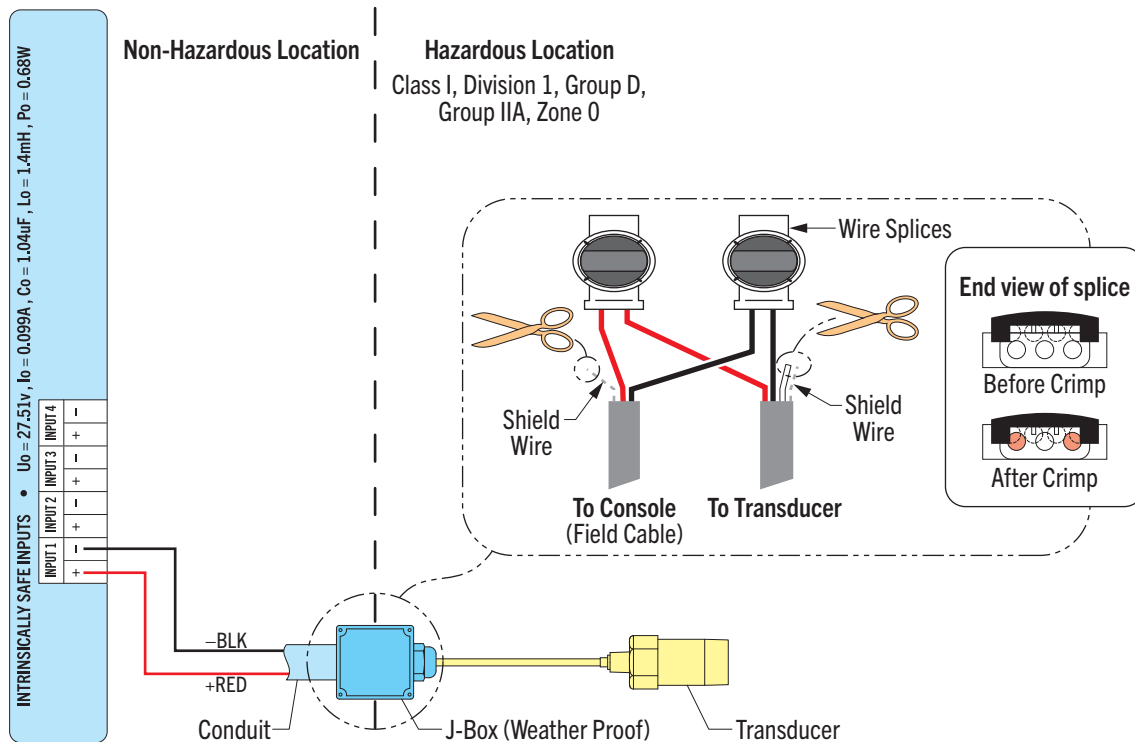
NOTE: Always start at the first available channel, *do not skip channels*.

- 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 transducer is wired inversely, it will not function.

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

1. Connect the BLACK and RED wires from the field wiring cable to a single channel.
The field wiring must enter the console in IS conduit through a knockout on the IS side of the barrier.
2. Bring the transducer wiring into the junction box.
3. Splice the transducer wiring to the field wiring in the junction box. Connect the supplied quick disconnect transducer cable to the transducer and securely tighten the nut. *Make sure there is a tight connection and seal. Failure to do so can prevent the device from meeting its stated IP rating and/or cause damage from liquid ingress*

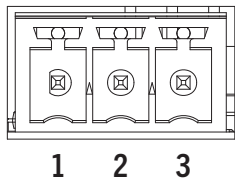
NOTE: The Shield and WHITE wires should be cutback and taped off so as to not cause any interference.



4.2.5 RS-485 Turbine Pump Interface™

Turbine Pump Interface™ (TPI) may be used instead of relays to control pump operations. The pin names of the RS-485 connector are shown below:

1. Wire the RS-485 connection per the following pin designations.



PIN Number	Function
1	–A
2	+B
3	GND

4.2.6 Re-Energize the Console

1. Reverse the Lockout / Tagout procedure performed in Step 1 of § 4.1 for the EVO™ LLD console and related systems (re-energize).

5 Appendix

5.1 Related Documents

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

Part Number	Description
10000017648	Electronic Line Leak Detection Featuring AUTO-LEARN® For EVO™ 600/6000/LLD
10000018142	EVO™ LLD Programming Guide
10000018143	EVO™ LLD Operator Guide

5.2 Certifications / Approvals

Product	Approval / Certification
EVO™ LLD (ANAA4D)	UL
TS-LSU500	cUL
	ATEX
	IECEX
	Third party certification of leak detection capabilities

5.3 Glossary

ELLD.....	Electronic Line Leak Detection
IS.....	Intrinsically Safe
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 Electronic Line Leak Detection (ELLD) system
USB.....	Universal Serial Bus

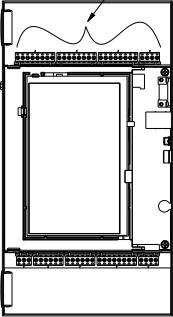
5.4 Control Drawings

5.4.1 LLD

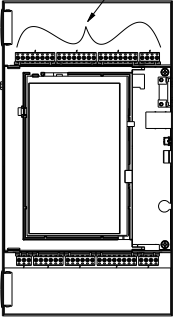
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NON-INTRINSICALLY SAFE COMPARTMENT



INTRINSICALLY SAFE COMPARTMENT



NON HAZARDOUS LOCATION

CLASS 1, DIV 1, GROUP D

HAZARDOUS LOCATION

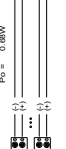
CLASS 1, DIV 1, GROUP D

MODEL ANAA-B.C.

ASSOCIATED APPARATUS

EACH TERMINAL PAIR: +, -

U₀ = 27.5Vdc
I₀ = 0.099 A
L₀ = 1.4 mH
P₀ = 0.88W



TO INTRINSICALLY SAFE APPARATUS OR SIMPLE APPARATUS

NOTES:

- THE MODEL ANAA-C) SHALL NOT BE CONNECTED TO ANY EQUIPMENT WHICH USES OR GENERATES GREATER THAN 250V.
- 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.
- THE MODEL ANAA-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.
- CAPACITANCE AND INDUCTANCE OF THE FIELD WIRING FROM THE INTRINSICALLY SAFE EQUIPMENT TO THE BARRIER SHALL BE AS SHOWN IN THE MANUFACTURER'S DATA SHEET. CAPACITANCE AS SHOWN IN THE MANUFACTURER'S DATA SHEET SHALL BE CAPACITANCE (C) PLUS INTRINSICALLY SAFE EQUIPMENT CAPACITANCE (C) MUST BE LESS THAN THE MARKED CAPACITANCE (C) SHOWN ON ANY BARRIER USED. THE SAME APPLIES FOR INDUCTANCE (L). L₀ AND L₁ RESPECTIVELY, WHERE THE CABLE CAPACITANCE (L₀) AND INDUCTANCE (L₁) VALUES ARE GIVEN IN THE FOLLOWING TABLES SHALL BE USED. Cables=602F ft. (2004F m). Leads=0.24H ft. (0.74H m).
- WIRING, CABLEING AND SEALS MUST BE INSTALLED IN ACCORDANCE WITH THE NEC, DEC OR OTHER APPLICABLE NATIONAL OR LOCAL CODES.
- THE ONLY CABLE THAT IS SPECIFIED IN THE USER INSTALLATION MANUAL OR LISTED EQUIVALENT FOR THE INSTALLATION OF LIQUID LEVEL PROBES.
- THE FOLLOWING WIRE TYPES ONLY, 18 AWG MINIMUM, TO CONNECT SENSORS TO THE ANAA-C) ASSOCIATED APPARATUS, OIL AND GASOLINE RESISTANT TYPES.
- THE ONLY CRIMP OR INSULATION DISPLACEMENT TYPE CONNECTORS FOR ELECTRICAL CONNECTIONS (DO NOT USE WIRE NUTS OR OTHER TYPE CONNECTORS).
- SEAL ALL FIELD WIRING CONNECTIONS FROM MOISTURE.
- SEE INSTALLATION MANUAL FOR MORE DETAIL.
- THE GENERAL CONTRACTOR MUST SUPPLY THE SPECIFIED WIRE, CONDUITS AND ELECTRICAL ACCESSORIES.
- THE ENTITY CONCEPT ALLOWS THE USER TO IDENTIFY ACCEPTABLE 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 ARE LISTED IN THE USER INSTALLATION MANUAL. THE USER MUST FIND IN THE DIAGRAM TO THE RIGHT, TO DETERMINE THE WORK (U₀), I₀ (max II), C₀ (L) AND P₀ 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:
U₀ (V) ≤ U₀ (V)
I₀ (A) ≤ I₀ (A)
P₀ (W) ≤ P₀ (W)
C₀ (C) ≥ C₀ (C) + C₀ (C)
L₀ (mH) ≥ L₀ (mH) + L₀ (mH)

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 FIELD. THE ENCLOSURE MUST BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) OR OTHER LOCAL CODES, AS APPLICABLE.

15. INTRINSICALLY SAFE CIRCUITS MUST BE WIRED AND SEPARATED IN ACCORDANCE WITH ARTICLE 504.2 OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) OR OTHER LOCAL CODES, AS APPLICABLE.

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

17. EQUIPMENT COMPLIES WITH THE FOLLOWING STANDARDS: UL 1218, IEC 60079-15, 3RD ED., CAN/CSA C22.2 NO. 60079-15:14, 2ND EDITION, AND CAN/CSA C22.2 NO. 42-M1897 (REAFFIRMED 2014).

18. UL LOGO DISPLAYED.

20. WARNING:

ASSOCIATED APPARATUS NON HAZARDOUS LOCATIONS 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 ASSOCIE ZONE NON DANGEREUSE FOURNIR DES CIRCUITS A SECURITE INTRINSEQUE POUR LES CAPTEURS SITUES DANS LA CLASSE I, DIV 1 GROUPE D. L'APPAREIL NE DOIT PAS ETRE INSTALLE 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 UNITE A PLUS D'UN POINT DE D'ALIMENTATION, DEBRANCHEZ TOUTES LES ALIMENTATIONS ELECTRIQUES 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 A LA SECURITE INTRINSEQUE. POUR EVITER L'IGNITION DE L'ENTRETIEN, 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 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.

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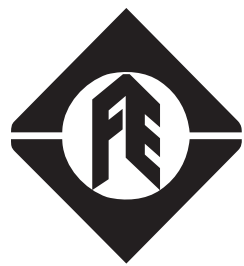
UL LISTED 6L79

CONTROL DRAWING CVMILLD (UL)

228180006-ANA

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5.5 Notes



Franklin Electric

FUELING SYSTEMS