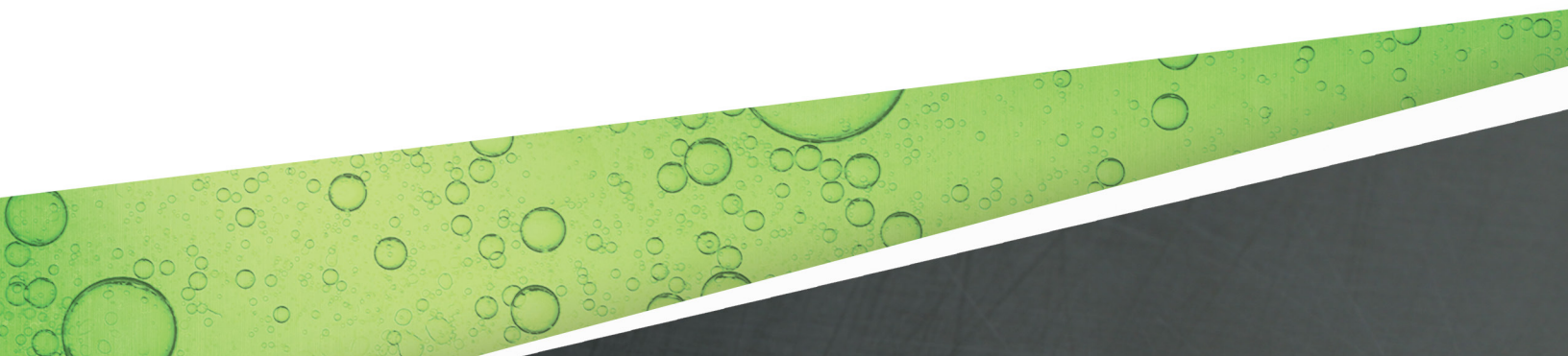


FMP-DPS-U DESICCANT SENSOR

INSTALLATION GUIDE



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For technical assistance, please contact:

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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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

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: 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.

▲ 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.

OVERVIEW

Franklin Fueling Systems (FFS) desiccant packs help remove moisture in dispenser sumps, fill sumps, and turbine sumps. This helps mitigate corrosive environments and disrupt the growth of microbes. The Desiccant Sensor (FMP-DSP-U) monitors desiccant packs and provides an alert, through the EVO™ 200, 400, 600, or 6000, when a pack should be replaced.

DESICCANT SENSOR PARTS



1. Desiccant sensor
2. Cable eyelet
3. Mounting eyelet
4. Three (3) Zip ties
5. Thumb screw
6. Single desiccant pack hook
7. Double desiccant pack hook
8. No strip splice connector pack
9. Sensor holder
10. 3/4" pipe clamp (for mounting with Uni-Strut®)
11. Yellow plug-in sensor cable
12. 3/4" pipe clamp (for mounting to 4" riser pipe)
13. 3/4" pipe

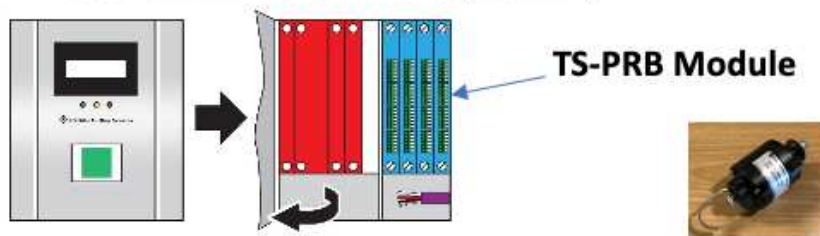
REQUIRED TOOLS

- Flathead screwdriver
- Needle nose pliers
- Multimeter
- Crescent wrench
- Wire cutters/stripper

CONNECTION COMPONENTS

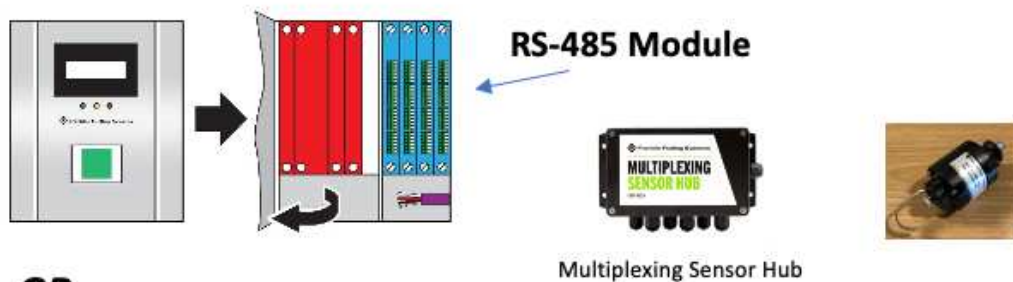
The sensor must connect two wires to an EVO™ 600 or EVO™ 6000 with a probe module or connect to the EVO™ 600 via a Multiplexing Sensor Hub. Alternatively, the sensor can connect directly to an EVO™ 200 or EVO™ 400.

EVO600 with Probe Module (TS-PRB)



OR

EVO600 with RS-485 Module and a Multiplexing Sensor Hub



OR

EVO200 or EVO400



INSTALLATION

1. Make sure you have the following:
 - Parts included with the sensor. (See "Desiccant Sensor Parts.")
 - Tools for installation. (See "Required tools.")
 - Sump layout plan. (This depends on the hanging method you choose.)
2. Turn off power to the console and the equipment in the sump. Follow all safety Electro-Static Discharge (ESD) precautions and practices.
3. Before you do the installation, check the sump for any residual moisture or standing water. If you find any, remove it with an absorbent cloth or paper towel(s).
4. Choose the installation method best suited for your application. There are three options:
 - Attach the sensor to the STP column pipe. This requires the sensor holder (black plastic), metal pipe, and pipe riser retention ring:



- Use the metal clip to attach the sensor to the Uni-Strut®. This requires the sensor holder (black plastic), metal pipe, and metal sensor retainer:



- Use a multiport cap and hanging eyelet to attach the sensor. This requires the cable eyelet, mounting eyelet, and two zip ties. To install and secure the desiccant pack:



1. Remove the inspection port can, and check for obstructions that would inhibit the desiccant pack from hanging freely below the cap. There should be a minimum of 29" from the top of the multiport cap to any object below the cap (e.g. Uni-Strut®, or junction box).
2. Drill a 11/32" hole through the inspection port cap
3. Install the mounting eyelet with the "eye" and washer hanging below the cap and the sealing washer and thin jam nut above the cap. Tighten to compress the sealing washer against the cap.



4. Insert the M12 connector end of the yellow cable through the eyebolt



5. Using pliers, spread open the cable eyelet enough to pass through the eye bolt. Bend the eyelet back together after inserting through the eye bolt.



6. Route the yellow cable around the eyelet (so there is about 1" of extra cable after the eyelet), and then secure the cable to the eyelet using the 2 zip ties



7. Hang the desiccant pack on the desiccant pack hook.
8. Place a zip tie through the hole in the front of the desiccant pack hook, and then place it through the hole in the top of the desiccant pack.
9. Place the zip tie through the hole in the back of the desiccant pack hook, and then connect and tighten the two ends of the zip tie.



10. Lower the desiccant bag through the inspection port and reinstall the cover



WIRING

There are three ways to wire the sensor. Choose the method that applies to your situation:

- Connect two wires to + and - on an EVO™ 600 or 6000 probe module.
- Connect the sensor to channel 2, 3, 4 or 5 of the Multiplexing Sensor Hub at IN and GND.
- Connect the sensor to an input + - in an EVO™ 200 or 400.

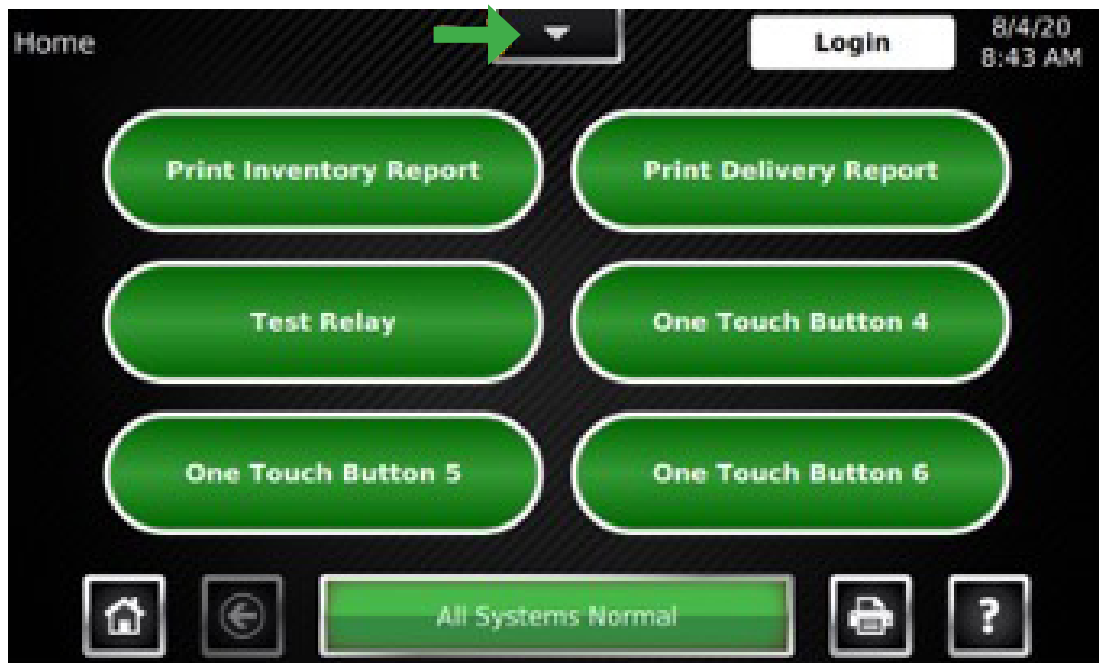
In all cases, the black wire is - and GND, and the white wire is + and IN.

PROGRAMMING

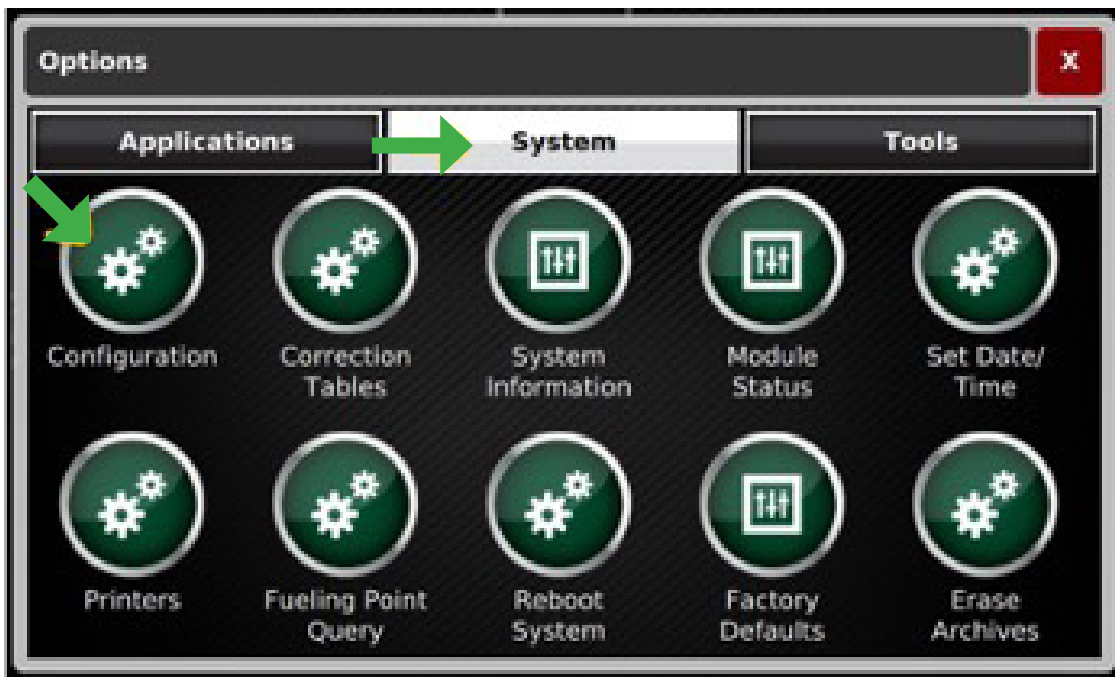
Go to Settings>>Configuration>>Fuel Management System>>Sensors, and program the console to recognize the sensor.

DPS PROGRAMMING THROUGH THE EVO CONSOLE GRAPHICAL USER INTERFACE (GUI)

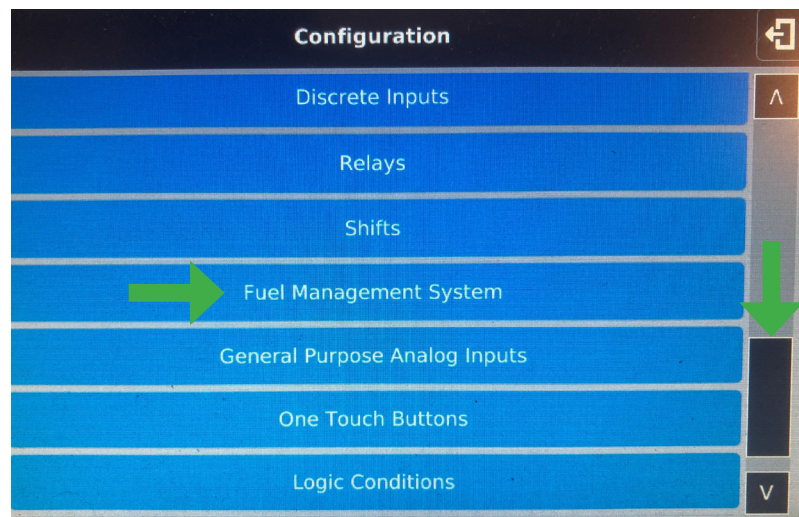
1. Select the Quick Jump Menu (down arrow in the center of the screen)



2. Select Configuration under the Systems Tab



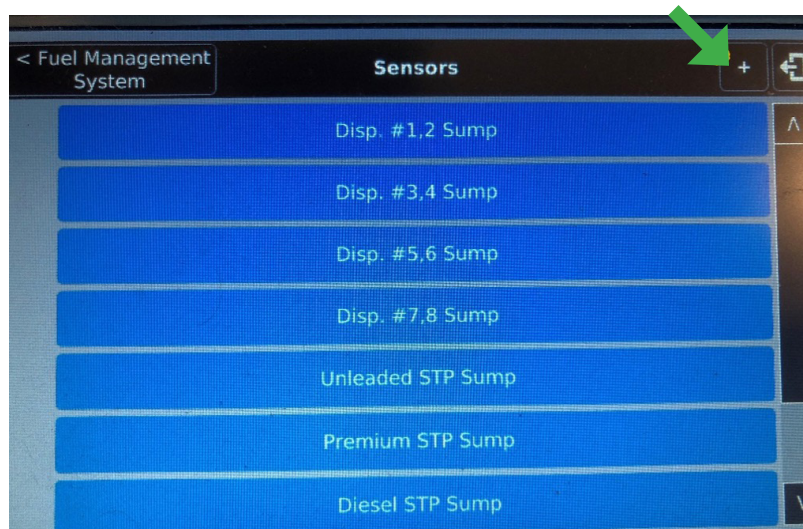
3. Scroll to "Fuel Management System"



4. Scroll to "Sensors"



5. Select "+" to add a sensor



6. Scroll to find the newly added sensor and complete the relevant information: Name (be descriptive), Sensor Number, Sensor Type, Connection Type, Number of Bags specific to your application.
7. Click Save.

Sensor 10

Name: DESICCANT DIESEL SUMP 1

Sensor Number: 10

Sensor Type: DPS Sensor

Connection Type: Probe Module

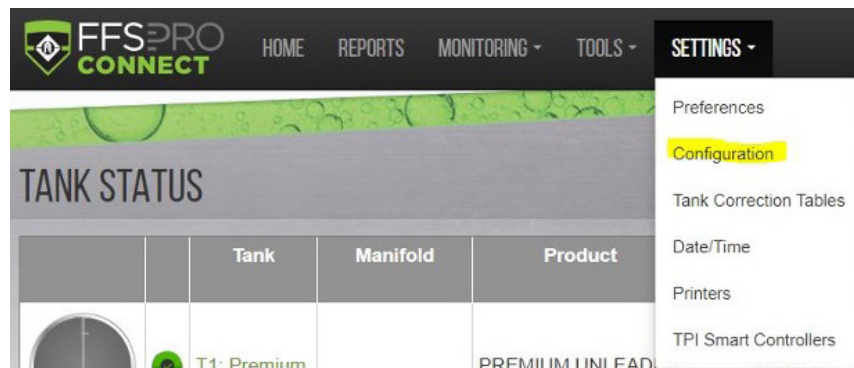
Module: 1

Channel: 10

Number of desiccant bags: 1

Save

DPS PROGRAMMING THROUGH FFS PROCONNECT



1. Connect to your EVO™ through FFS Pro Connect. Proceed to Settings > Configuration > Fuel Management Systems > Sensors.

Fuel Management System	
Compensation Temperature	60.0 °F
Use Safe Working Capacity	No
Ullage Percent	90
Delivery Delay	15 min
Low Product Limits By	Volume
High Product Limits By	Volume
Development Mode	Yes
☐ Static Tank Testing	...
☐ Logging	...
☐ Products	...
☐ Tank Types	...
☐ Tanks	...
☐ Manifolds	...
☒ Sensors	...

- Click the (+) to add a new sensor.

Sensors		
☐ L10: Disp 3-4	x	...
☐ L11: Disp 5-6	x	...
☐ L12: Disp 7-8	x	...
☐ L13: Disp 9-10	x	...
☐ L14: Disp 11-12	x	...
☐ L15: Disp 13-14	x	...
☐ L16: Disp 15-16	x	...
☐ L24: T4 Diesel Fill	x	...
☐ Desiccant In Sump #1	x	...
☐ Sensor 10	x	...

- Name your desiccant pack sensor if desired.

Sensors	
☐ L10: Disp 3-4	x
☐ L11: Disp 5-6	x
☐ L12: Disp 7-8	x
☐ L13: Disp 9-10	x
☐ L14: Disp 11-12	x
☐ L15: Disp 13-14	x
☐ L16: Disp 15-16	x
☐ L24: T4 Diesel Fill	x
☐ Desiccant In Sump #1	x
☐ Sensor 10	x
☐ Sensor 11	x

Name	Desiccant In Sump #2
Sensor Number	27
Sensor Type	ULS/UHS Sensor
Connection Type	2-Wire Sensor Module
Module	<not set>
Channel	<not set>
Monthly Compliance	No
Data Logger	Disabled

- Select Sensor Type: DPS Sensor.

Desiccant In Sump #2	
Name	Desiccant In Sump #2
Sensor Number	27
Sensor Type	<div> CDS Sensor CDS-H Sensor ULS/UHS Sensor WDS Sensor DPS Sensor </div>
Connection Type	Probe Module
Module	1
Channel	11
Number of desiccant bags	1
Monthly Compliance	No
Data Logger	Disabled

- Choose Probe Module from the Connection Type drop-down list. (For Multiplexing Sensor Hub connection, go to step 8.)

☐ Desiccant in Sump #2	Name	Desiccant in Sump #2
	Sensor Number	27
	Sensor Type	DPS Sensor
	Connection Type	<div> <div>Probe Module</div> <div>Sump Multiplexer</div> </div>
	Module	1
	Channel	11
	Number of desiccant bags	1
	Monthly Compliance	No
	Data Logger	Disabled

Select Desired Channel (Probe Module).

☐ Desiccant in Sump #2	Name	Desiccant in Sump #2
	Sensor Number	27
	Sensor Type	DPS Sensor
	Connection Type	Probe Module
	Module	1
	Channel	<div> <div>8</div> <div>9</div> <div>10</div> <div>11</div> <div>12</div> </div>
	Number of desiccant bags	1
	Monthly Compliance	No
Data Logger	Disabled	

- Select Number of Desiccant Bags (Probe Module).

☐ Desiccant in Sump #2	Name	Desiccant in Sump #2
	Sensor Number	27
	Sensor Type	DPS Sensor
	Connection Type	Probe Module
	Module	1
	Channel	11
	Number of desiccant bags	<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> </div>
	Monthly Compliance	No
Data Logger	Disabled	

7. Add Module (Multiplexing Sensor Hub).

CONFIGURATION		
Drag and drop: Move Download selected Upload... Merge... Revert Save		
Group	Parameter Name	Parameter Value
☐ System ID	8	
☒ System Configuration		
☒ Modules Expected		
	IO	0
	AC Input	0
	Relay	0
	Relay (10A)	0
	Probe	1
	2-Wire Sensor	0
	3-Wire Sensor	1
	4-20mA Input	1
	4-20mA Input (EXP)	0
	RS-485 serial	1
	RS-485 serial (NIS)	0
	Internal Printer	0
	Internal DIM	0

NOTE: When you program the console to communicate with the sensors through the Multiplexing Sensor Hub, choose Sump Multiplexer in the Connection Type drop-down list. For more information, see the EVO™ 600 and EVO™ 6000 Automatic Tank Gauges Programming Guide (part number 228180061).

8. Select Connection Type (Multiplexing Sensor Hub).

Sensor 11	
Name	Sensor 11
Sensor Number	27
Sensor Type	DPS Sensor
Connection Type	Probe Module Sump Multiplexer
Module	<not set>
Channel	1
Multiplexer Input	<not set>
Number of desiccant bags	1
Monthly Compliance	No
Data Logger	Disabled

9. Select Module (Multiplexing Sensor Hub).

Desiccant in Sump #2	
Name	Desiccant in Sump #2
Sensor Number	27
Sensor Type	DPS Sensor
Connection Type	Sump Multiplexer
Module	1
Channel	1
Multiplexer Input	<not set>
Number of desiccant bags	1
Monthly Compliance	No
Data Logger	Disabled

10. Select Desired Channel (Multiplexing Sensor Hub).

☐ Desiccant in Sump #2	Name	Desiccant in Sump #2
	Sensor Number	27
	Sensor Type	DPS Sensor
	Connection Type	Sump Multiplexer
	Module	1
	Channel	1
	Multiplexer Input	<not set>
	Number of desiccant bags	1
	Monthly Compliance	No
	Data Logger	Disabled

11. Select Multiplexer Input (Multiplexing Sensor Hub).

☐ Desiccant in Sump #2	Name	Desiccant in Sump #2
	Sensor Number	27
	Sensor Type	DPS Sensor
	Connection Type	Sump Multiplexer
	Module	1
	Channel	1
	Multiplexer Input	2
	Number of desiccant bags	1
	Monthly Compliance	No
	Data Logger	Disabled

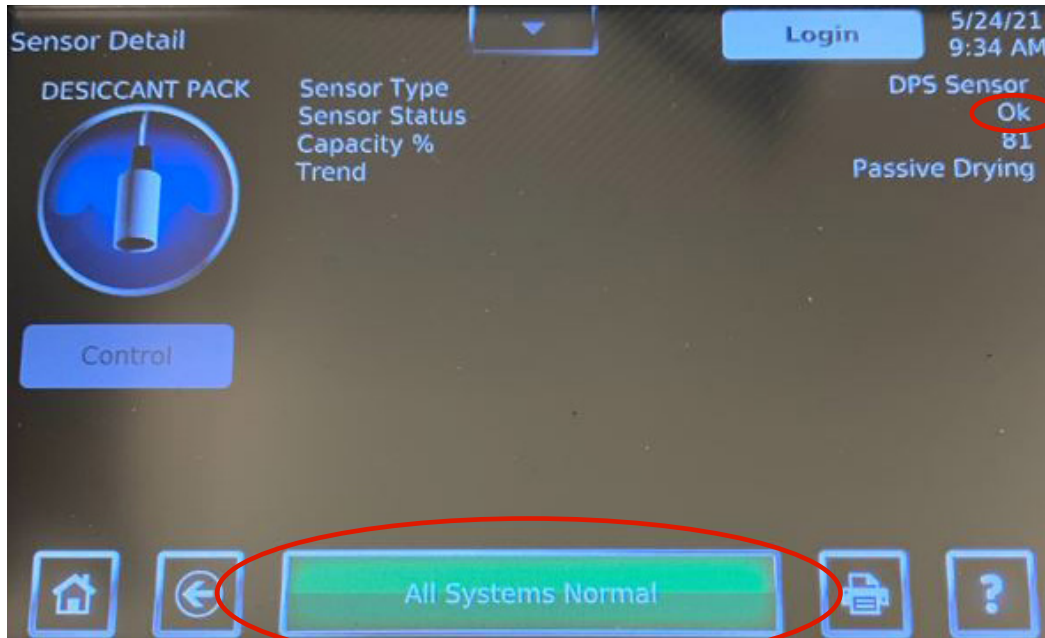
12. Select Number of Desiccants.

☐ Desiccant in Sump #2	Name	Desiccant in Sump #2
	Sensor Number	27
	Sensor Type	DPS Sensor
	Connection Type	Sump Multiplexer
	Module	1
	Channel	1
	Multiplexer Input	2
	Number of desiccant bags	2
	Monthly Compliance	No
	Data Logger	Disabled

SENSOR DETAIL SCREEN

The following Sensor Detail screens show:

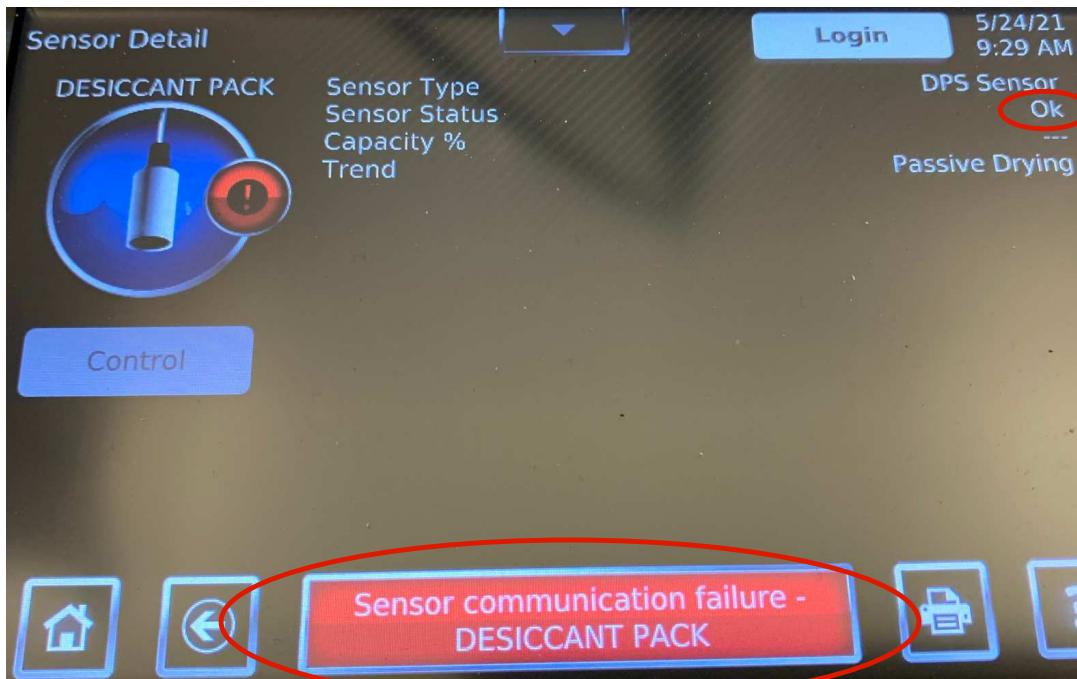
- "All Systems Normal" in green with an "Ok" desiccant pack readout, which means the desiccant pack is in the proper position and there is no sensor communication failure.



- "All Systems Normal" in green with a "Desiccant Missing" desiccant pack readout, which means there is no sensor communication failure, but the desiccant pack is not in the proper position and must be repositioned.



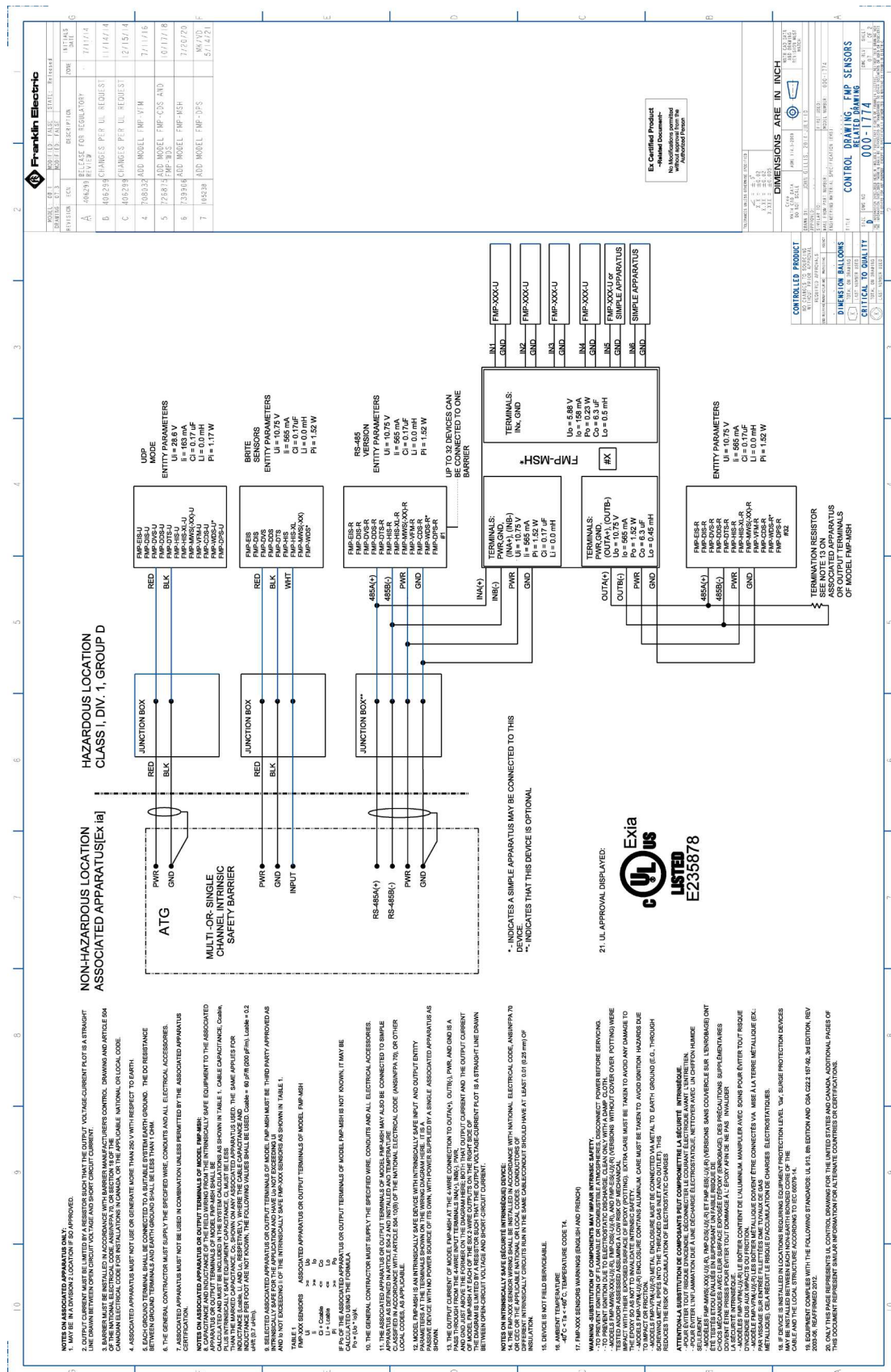
- "Sensor Communication Failure - DESICCANT PACK" in red, which means there is a communication error with the sensor that must be corrected, but the "Ok" desiccant pack readout means the desiccant pack is in the proper position.



VERIFY

After you complete the installation, wiring, and programming, make sure the sensor is recognized and is functioning properly.

CONTROL DRAWING 1



CONTROL DRAWING 2

