FMP-DDS/FMP-DTS AND FMP-DDS-U/FMP-DTS-U

INSTALLATION GUIDE
Contents

Introduction ..................................................................................................................................................1
Conventions used in this manual ...........................................................................................................3
Questions and concerns .........................................................................................................................3
Operating precautions ............................................................................................................................4
Installation..............................................................................................................................................5
Installing an FMP-DDS or FMP-DTS sensor .............................................................................................5
  Equipment required .............................................................................................................................5
  Procedure ..............................................................................................................................................6
Control drawing 1 ....................................................................................................................................8
Control drawing 2 ....................................................................................................................................9
Maintenance.............................................................................................................................................10
Testing the Sensors ...............................................................................................................................10
Sensor location record .........................................................................................................................10
Introduction

The FMP-DDS and FMP-DTS sensors are intelligent BRITESENSOR®s. The FMP-DDS sensor is used to monitor for the presence of liquids and liquid hydrocarbons in dispenser sumps. The longer FMP-DTS sensor is used in turbine sump applications. These sensors are intrinsically safe leak detection circuits and are approved for use in Class 1, Division 1, Group D Hazardous Areas (Group IIA, Zone 0 for EU applications).

The FMP-DDS and FMP-DTS are offered in two communication options: the original BRITESENSOR® protocol and the new Universal Device Protocol (UDP). The BRITESENSOR® protocol uses three wires and is compatible with the T1 Series, T5 Series, EVO™ 550, and EVO™ 5000 Automatic Tank Gauges. The UDP uses 2 wires and is compatible with the EVO™ 200 and EVO™ 400 Automatic Tank Gauges (ATGs).

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Communication Method</th>
<th>Compatible ATGs</th>
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<tbody>
<tr>
<td>FMP-DDS</td>
<td>BRITESENSOR® protocol</td>
<td>T1 Series, T5 Series, EVO™ 550, and EVO™ 5000</td>
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<tr>
<td>FMP-DTS</td>
<td>BRITESENSOR® protocol</td>
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<td>FMP-DDS-U</td>
<td>Universal Device Protocol</td>
<td>EVO™ 200 and EVO™ 400</td>
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<tr>
<td>FMP-DTS-U</td>
<td>Universal Device Protocol</td>
<td>EVO™ 200 and EVO™ 400</td>
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These sensors have an upper and lower float and a conductive polymer strip that reacts specifically with liquid hydrocarbons. They also have a microprocessor that analyzes the environmental conditions at the sensor and transmits data to the ATG console. The sensors transmit a specific sensor ID code and detect and communicate:

- WATER present (lower float).
- PRODUCT present (polymer strip)
- SUMP FULL (top float).
- NORMAL no-alarm state.
Each sensor includes:

- No-strip electrical wire connectors.
- 9’ of cable (attached).
- A model ID tag.
- A sensor holder.
- A cord-grip fitting for connection to a weatherproof electrical junction box.
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.

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
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.

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

Installing an FMP-DDS or FMP-DTS sensor

Equipment required

- TSP-DB1 epoxy seal kit for no-strip electrical connectors. This is optional and is recommended for sites where one or more of the following apply:
  - The area is in a flood zone.
  - The groundwater table is high.
  - There is poor drainage
  - Junction boxes are not used.

- Model TSP-KS unistrut-mounting-kit. This is optional and is recommended for mounting the sensors.

- ½ or ¾” NPT (National Pipe Thread, tapered), Rigid Metal Conduit (RMC), or nonmetallic (PVC) if allowed by local code.

- EYS seal fittings and epoxy to fill the fitting after operational testing.

- Weatherproof junction box, gasket, cover, and a ¾ to ½" NPT reducing bushing if you use ½" RMC. (See the ATG Installation Guide for recommended electrical junction boxes.)

- Wire: THHN, TFFN or THWN, 18 AWG: Red, White, & Black, or Alpha Cable # 58113, 0.131" (3.3 mm) OD, 1,500 feet (457 meters) maximum length. Use alpha cable 58113 with non-metallic (PVC) conduit.

- Slip joint pliers.

- UL-classified thread sealant or pipe dope.
Procedure

**IMPORTANT:** When you install the sensor, make sure it is in contact with the bottom of the sump.

1. Install the sensor in the sump.

2. Check the mounting details.

**IMPORTANT:** Make sure the sensor is in contact with the bottom of the sump.
3. Install the conduit, EYS fittings, and the weatherproof junction box.

4. Turn off the power to the console.

**WARNING:** To help avoid electrical shock hazards, make sure the power to the ATG console is turned off, tagged, and locked-out at the power panel before you do any maintenance or installation work at the console.

5. Install the sensor cable through the supplied compression fitting.

6. Install the compression fitting at the waterproof junction box, and tighten the cord-grip fitting.

7. Trim the wires and cables at the junction box to 6–8” (15–20 cm), or service-loop, and splice the wire according to the diagram for the appropriate communication type, BRITESENSOR® or UDP.

8. Connect the wires for the appropriate ATG as shown below.

9. Turn on the power to the console.

10. Test the sensor. Verify that an alarm is produced at ATG console, and then seal the EYS seal fittings and electrical connectors with epoxy.

11. If you are going to install other devices, turn off the power to the console, and repeat step 3.

12. Reinstall all safety covers and guards, as well as junction box gasket and covers, and then use pipe-dope to seal all fitting threads.

13. Install the manhole cover.

14. Record the location where the sensor was installed in the "Sensor location record" at the end of this manual. You will need this information when you set up the ATG.

15. Turn on the power to the console, and program the ATG. (For more information, refer to the documentation for your ATG.)
Maintenance

Testing the Sensors

Turn the sensor so the bottom faces up (both floats are actuated). The WATER and SUMP FULL alarms activate. You can wash and recover sensors after they have been exposed to liquid hydrocarbons, but testing for product alarms is not recommended because there is a long after-test recovery period. Test sensors every year (or more frequently if required by local code).

Sensor location record

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<thead>
<tr>
<th>Sensor</th>
<th>Channel Number/Notes</th>
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