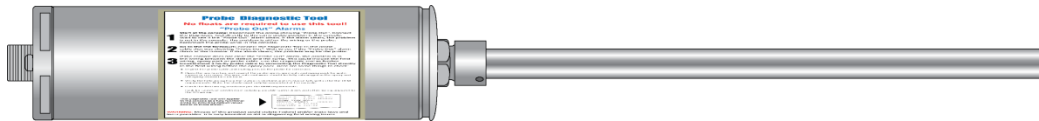


# Installation Instructions

## New PMP Probe Diagnostic Tool for Veeder-Root<sup>®</sup> applications

PMP	Name	Typical Application
63xxx	PMP Probe Diagnostic Tool*	To be used by professional petroleum technicians to quickly diagnose Veeder-Root <sup>®</sup> console, wiring and probe issues in the field



### Package Contents:

- Probe Diagnostic Tool
- 5' PMP Probe Cable

### \*Accessories:

**PMP Probe Cable  
80208 & 80209**



**PMP Probe Extension Cable  
80211 & 80212**



**Compatible with Veeder-Root ATG consoles using all Standard Mag and Mag Plus probes:**

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## Disclaimer

All product or company's names, trade names, trademarks, parts numbers and part descriptions may be the trademarks of their respective owners, and are used for reference or identification purposes only. PMP does not claim any right to or affiliation with such owners. The PMP product described here is manufactured and sold by PMP and is not the product of any other identified manufacturer.











## Related Manuals

This installation requires specific knowledge of Veeder-Root equipment and you may need to refer to the OEM manuals to complete the installation. There are a number of manuals that might apply to Mag Probe installation. The following are just a few which cover the most common applications:

576013-879	TLS-3XX Series Console Site Prep and Installation Manual
577013-879	TLS-4XX Series Console Site Prep and Installation Manual
576013-818	TLS-3xx Series Console Troubleshooting Guide
577013-918	TLS-4xx Series Console Troubleshooting Guide
576013-774	Mag Plus Probe - Assembly Guide
577014-348	Magnetostrictive Probes – Quick Troubleshooting Guide
577013-814	Operability Testing Guide

## Safety Symbols

The following safety symbols are used to alert you to potential hazards and precautions that should be taken. These symbols are not intended to alert you to all of the potential hazards you could be exposed to while working in a service station environment. These symbols cannot replace common sense and industry practices.

	<p><b>READ ALL RELATED MANUALS</b> Read and understand all of the written material related to the installation of this product. If you are un-sure of any aspect of this product, contact PMP for clarification</p>
	<p><b>WARNING</b> Attention. Pay particular attention to the text adjacent to the use of this symbol to alert you to safety or operational issues.</p>
	<p><b>TURN OFF POWER</b> Remove / disconnect all power before proceeding with this installation.</p>
	<p><b>ELECTRICITY</b> Potential shock hazard. Test circuit to verify power has been disconnected</p>
	<p><b>BARRIERS</b> Cordon off work area with barriers to avoid contact with traffic</p>
	<p><b>EXPLOSIVE</b> Potentially explosive materials and or atmosphere. Take necessary precautions.</p>
	<p><b>FLAMMABLE</b> Potentially flammable materials and or atmosphere. Take necessary precautions.</p>
	<p><b>ESD (Electrostatic Discharge)</b> Take necessary precautions to avoid damaging sensitive electronics</p>
	<p><b>SAFETY</b> Use appropriate safety equipment including equipment that may be mandated by federal, state and local regulations.</p>
	<p><b>GLOVES</b> Wear gloves during this operation.</p>

## BEFORE YOU BEGIN



- Service station equipment has both electricity and hazardous, flammable and potentially explosive liquid. Failure to follow the precautions below and instructions in this guide may result in serious injury and death. Follow all rules, codes and laws that apply in your area.
- Installation should only be performed by a Franklin Fueling Systems certified installer or service person allowed to access both the user interface keypad and areas internal to the Tank Sentinel console.



- PMP shall not be liable for errors contained herein or for incidental or consequential damages in connection with furnishing, performance or use of this publication.
- PMP reserves the right to change product features or the information contained in this publication.
- Failure to install this product in accordance with OEM instructions and warnings will result in voiding of all warranties connected with this product and may damage the environment.

## SAFETY PRECAUTIONS FOR INSTALLATION AND MAINTENANCE



- Only a person with knowledge and experience with service station equipment should perform this work.
- Always make sure ALL power to the equipment you are working with is turned OFF before starting any maintenance.



- Note that more than one disconnect switch may be required to de-energize the equipment for maintenance and servicing. Use a voltmeter to make sure ALL circuits in the dispenser are de-energized. Failure to do so may result in serious injury.

## Description

Thank you for purchasing the Probe Diagnostic Tool. This product was developed specifically for petroleum professionals to diagnose and troubleshoot probe issues in the field. When connected to the TLS probe inputs, this tool will appear as a fully functional probe with fixed values (Note that values may drift due to tolerances and temperature).

This tool will allow the technician to quickly determine if there are other sources causing a “Probe Out” situation before replacing the probe.

## Instructions

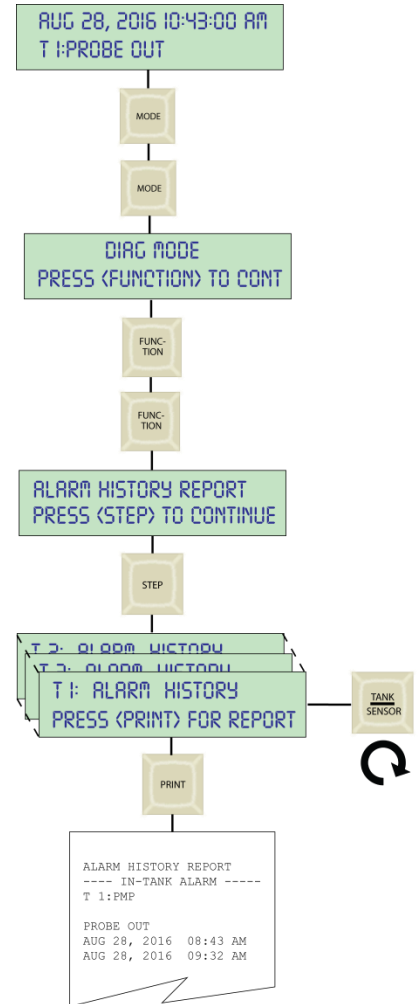
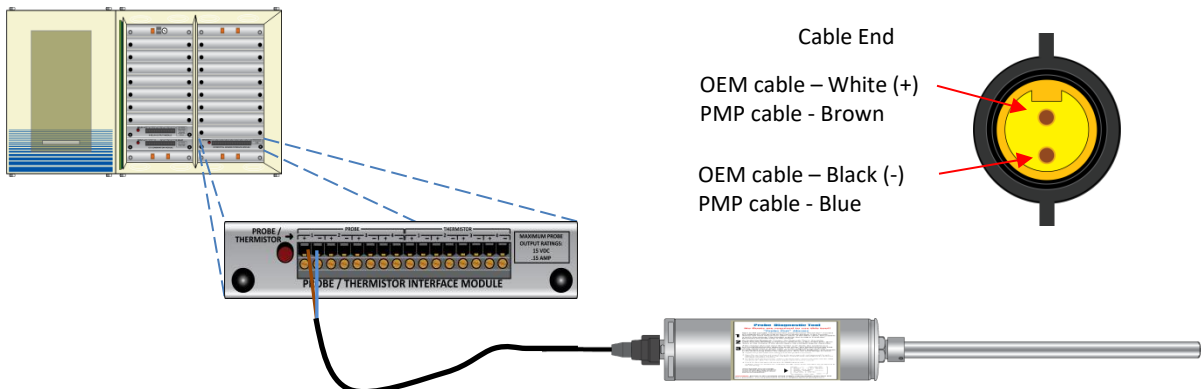
The most common probe error reported is “Probe Out”. Many “Probe Out’s” are due to a bad probe cable, bad wiring or inadequate grounding at the console. Other, less likely, causes are a failed Probe Thermistor module in the console or the probe itself.

### Start at the Console:

- Run an Alarm History report to verify that the “Probe Out” is not a reoccurring problem. This may provide a clue as to where the problem is.
- Verify the probe polarity is correct at the interface module (TLS-350 Probe / Thermistor shown).
- Verify that the console is grounded properly using a 12 AWG conductor with a resistance measurement of  $<1\Omega$  between the console ground and a known good ground. If the resistance is higher, the console is not properly grounded.
- Determine which probe is reporting an issue. The console should indicate which tank(s) are reporting a “Probe Out”.



- Once you know which probe is reporting the error, disconnect that probe and connect the Probe Diagnostic Tool in its place. It may take a couple of minutes for the console to recognize the Diagnostic Tool. The “Probe Out” alarm should clear soon after. If not, there may be something wrong at the console.



- If the “Probe Out” clears, run the inventory report again. This time you should see the new probe and its values. Note that the Diagnostic Tool will return values similar to those shown:
- Once you are satisfied that the console recognizes the Diagnostic tool, reconnect the original probe wires to the console. You can probably assume that the problem is not in the console.

AUG 28, 2016 10:43:00 AM  
ALL FUNCTIONS NORMAL



```

PMP SENSOR TEST
25 SECURITY DRIVE
AVON CT 06001
860-677-9656

AUG 28, 2016 10:43 AM

SYSTEM STATUS REPORT
- - - - -
ALL FUNCTIONS NORMAL
- - - - -

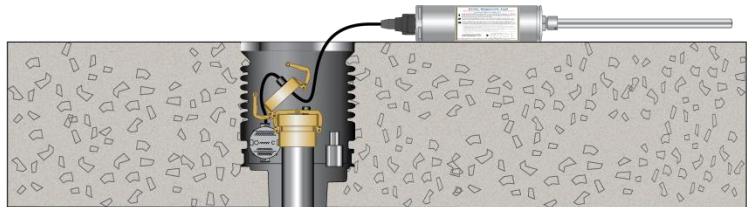
T 1:PMP
VOL INVALID 1181 GALS
ULLAGE = 13119 GALS
90% ULLAGE= 11619 GALS
TC VOLUME = 1891 GALS
HEIGHT = 13.18 INCHES
WATER VOL = 134 GALS
WATER = 2.20 INCHES
TEMP = 75.1 DEG F

* * * * * END * * * * *

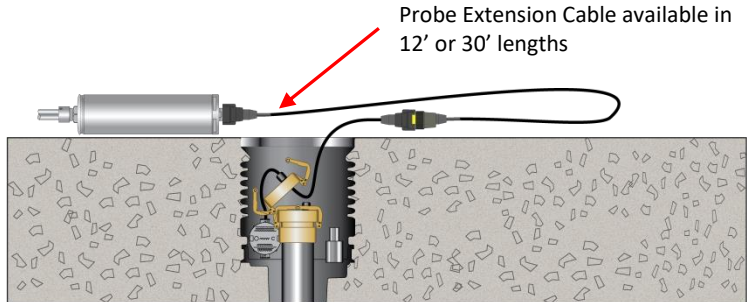
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**Go to the Forecourt Sump:**

- Locate the riser containing the probe reporting probe out. If necessary, pull the probe and disconnect the probe cable from the probe.
- Connect the probe cable to the Probe Diagnostic Tool.

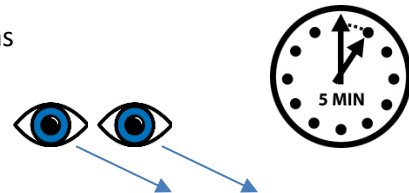


- Connect the probe cable to the Probe Diagnostic Tool.



A PMP Probe Extension Cable (PMP p/n 80211 or 80212) can help when working on probes. It temporarily allows you to lengthen the probe cable and allow you to lay the probe on the forecourt while working on it.

- Wait up to 5 minutes to see if the console recognizes the Diagnostic Tool. Go to the console to verify the “Probe Out” has cleared.
- If the “Probe Out” clears, it could mean one of two things:
  - The wiring is good and the probe is bad.
  - The probe is good and the connection was bad.



AUG 28, 2016 10:43:00 AM  
ALL FUNCTIONS NORMAL

Sometimes, just the act of plugging and un-plugging the connector is enough to clear a “Probe Out” problem caused by a faulty connection. Over time the probe connections can corrode if water has been able to infiltrate the connector.

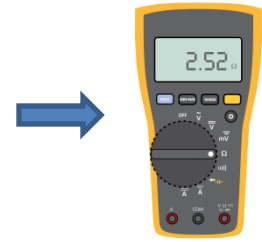
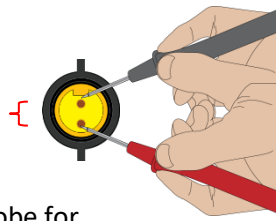


If at any point the “Probe Out” clears during troubleshooting process, be sure to **wait 30 minutes to confirm the alarm does not return.**

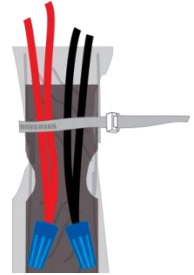
## Wiring Issues

- Confirm the field wiring between the console and the sump is shielded per the OEM.
- Disconnect the probe wires at the console and connect the two leads. Go back to the sump and measure the resistance between the two contacts. You should see results like the following:

- 14 AWG should measure 2.52 Ω per 1000 ft.
- 16 AWG should measure 4.02 Ω per 1000 ft.
- 18 AWG should measure 6.39 Ω per 1000 ft.



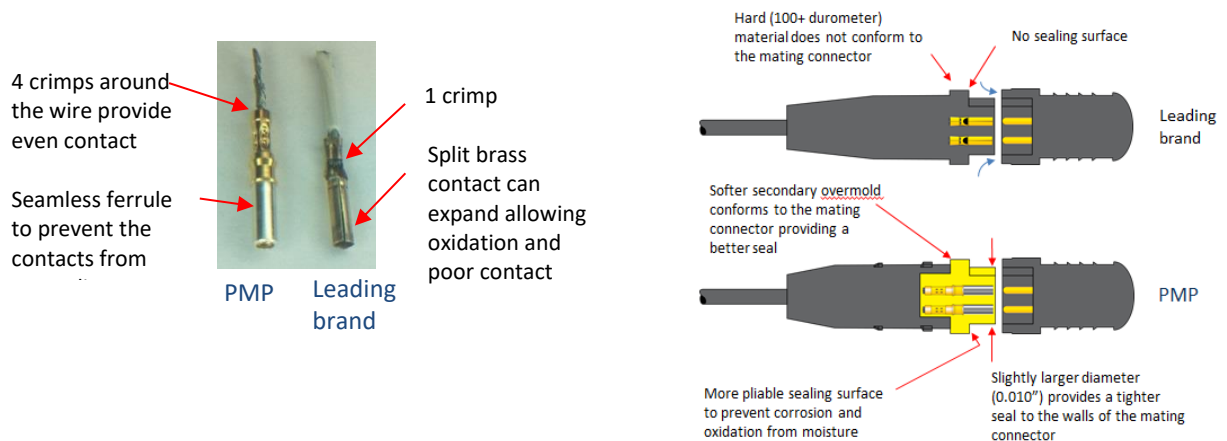
- Inspect the probe cable and mating pins on the probe for corrosion.
- Open the junction box and inspect the probe wires, wire nuts and epoxy pack for water ingress or corrosion. The wire nuts and wires should be fully submerged in the epoxy and the epoxy should be rock hard.
- If no epoxy pack was used, this must be corrected per the OEM recommendations.
- There should be no additional splices between the junction box and the console.



If a new Probe cable is required, we recommend replacing the existing probe cable with a PMP probe cable. PMP Probe Cables are designed to provide an improved connector-to-connector contact. The cables are available in 5', 10' and 20' lengths.



We believe our probe cable will provide more reliable service with improved contact features and additional internal crimps. In addition, the connector housing will provide improved sealing surfaces when mating with the connector on the probe.

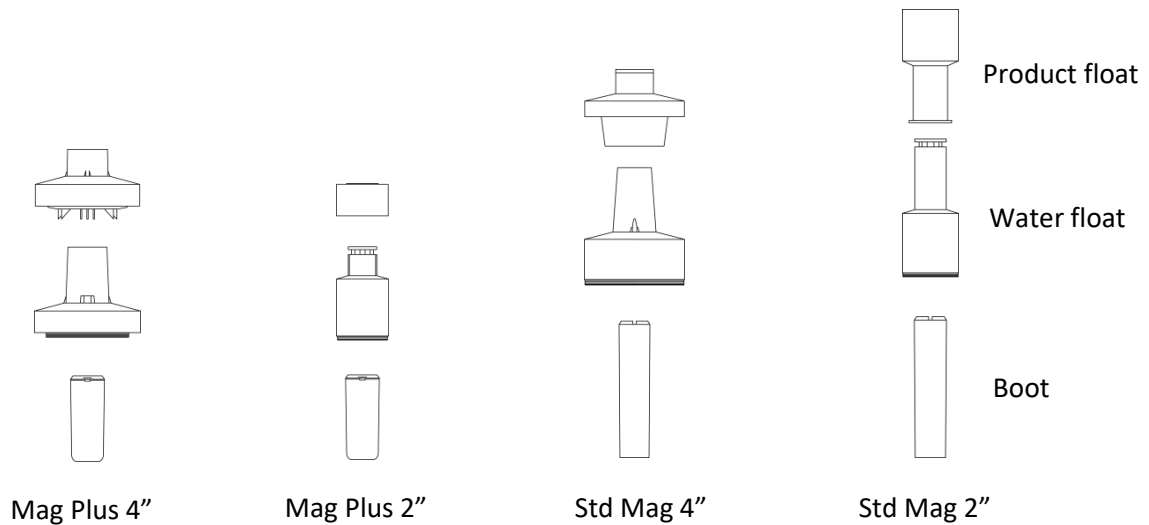


## Less Common Issues

Before assuming that you have a bad probe, here are some less common causes of “Probe Out”

- Verify that the riser pipe is not magnetized by tying a paper clip to a piece of string and lowering it into the riser.
- Verify that there are no potential causes of interference including variable speed drives and associated wiring in the station or near any TLS wiring.

- Confirm that you have the correct float set for the probe being used. Although there are only two basic types of Mag Probes, there are several types of float available for different installations. As a rule of thumb:
  - Standard Mag floats will not work on Mag Plus probes
  - Mag Plus floats will not work on Standard Mag



**PMP CORPORATION**  
 P.O. Box 422 • 25 Security Drive  
 Avon, CT 06001  
 E-mail: [sales@pmp-corp.com](mailto:sales@pmp-corp.com)

Local: 860-677-9656  
 Toll Free: 800-243-6628  
 Toll Free Fax: 888-674-0196  
 Web: [www.pmp-corp.com](http://www.pmp-corp.com)



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