

**Instruction**

MI 611-136  
February 2016

**Reference Junction Refill Kit  
for 871PH Sensors**



# Kit Inventory

The kit contains the following parts:

Description	Quantity
Reference Junction	1 (or 10)
Extractor Kit	1
Reference Cavity Solution	1
MI 611-136	1

## Introduction

The reference cavity should be refilled (and the reference junction perhaps replaced) when standardization is no longer possible or when erratic readings cannot be corrected by other means explained in MI 611-148. The time interval at which refilling should be done depends on variable conditions such as temperature cycling, pressure cycling, and so forth. Under normal conditions, it should not be required more often than every six months.

## Removing the Reference Junction

### **CAUTION**

---

Do **not** remove a reference junction without having a measuring electrode installed.

---

1. Hold the sensor vertically with the electrode end up.
2. Remove the knurled keeper lockscrew (or pan head screw if the optional -T teflon collar or ECS-5 electrode cleaning system is used) and disengage the keeper from the electrode and reference junction.
3. Slide the extractor tool (beveled edges up) into position as shown in Figure 1. Note that the edges fit into the reference junction retaining slot.

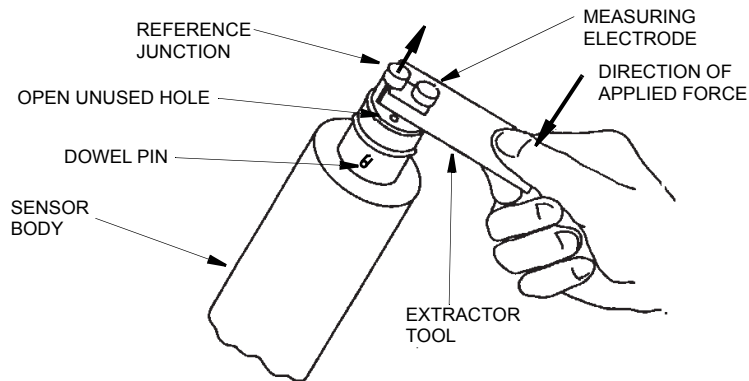
### **NOTE**

---

The reference junction is the white, ceramic faced disk.

---

4. Press down lightly on the end of the extractor.
5. Lift the electrode out of its cavity until the O-ring is clear.
6. Carefully remove the extractor tool.
7. Grasp the reference junction and pull it straight out of the cavity using a slight turning motion to assist the removal.
8. Remove all solution in the reference cavity by turning the sensor upside-down and shaking it (like a thermometer).



*Figure 1. Removing Reference Junction*

## Refilling the Reference Cavity

1. Inject new reference cavity solution into the reference cavity until the cavity is about half full.
2. Cover the opening with your thumb and shake the sensor vigorously.
3. Remove all of this new solution from the cavity by turning the sensor upside-down and shaking it (like a thermometer).
4. Inject new solution into the cavity until the cavity is nearly full.

---

**NOTE**

The -D ion barrier reference junction requires less solution.

---

5. Tap the sensor to eliminate all air bubbles.

# Installing the Reference Junction

Replace the old reference junction or install the new reference junction as follows:

1. Push the reference junction into place until the O-ring seats, allowing excess solution to flow out.
2. An additional small amount of solution may have to be removed to allow the junction to seat. If so, do this by removing the reference junction and shaking off solution adhering to the junction body.
3. Repeat Steps 1 and 2 to remove enough solution for the junction to seat properly.
4. Press the reference junction firmly into the cavity and hold it in the seated position.

**⚠ CAUTION**

---

Do not use excessive force to seat the reference junction because this might damage the internal seals.

---

5. Slide the keeper into place between the reference junction and the electrode while holding the junction down.
6. Install and secure the knurled keeper lock screw (finger tight) or the pan-head screw (if the optional -T teflon collar or ECS-5 electrode cleaning system is used). Do **not** overtighten.
7. Perform a calibration (1-point for ORP measurement, 2-point for pH measurement).

**ISSUE DATES**

AUG 2004  
FEB 2016

Vertical lines to the right of text or illustrations indicate areas changed at last issue date.



Invensys Systems, Inc.  
38 Neponset Avenue  
Foxboro, MA 02035  
United States of America  
<http://www.fielddevices.foxboro.com>

Global Customer Support  
Inside U.S.: 1-866-746-6477  
Outside U.S.: 1-508-549-2424  
Website: <http://support.ips.invensys.com>

Copyright 2004-2016 Invensys Systems, Inc.  
All rights reserved.

Invensys and Foxboro are trademarks of Invensys Limited, its subsidiaries, and affiliates. All other trademarks are the property of their respective owners.

Invensys is now part of Schneider Electric.