

Innovative pH Solution Protects Membranes in Reverse Osmosis Systems

RESULTS

- Optimize Water Purity
- Decrease Membrane Consumable Costs
- Asset Protection
- Water Use Optimization



BACKGROUND

Reverse osmosis (RO) is a technique for removing dissolved solids from filtered raw water. It is used in a number of different applications. For Beverage Producers, water purity for ingredient purposes is an important start to producing quality, reproducible branded products.

Reverse osmosis works by pressurizing water and forcing it through small, permeable membranes. The water passes through the membranes, but the dissolved solids are relatively impermeable and are rejected, producing high purity water (see figure 1).

CHALLENGE

pH measurement plays an important role in the membrane purification process for Beverage Producers. Most beverages are slightly acidic while raw pre-treated water tends to be slightly alkaline. In addition, the membrane fibers are cellulose based and degrade in alkaline conditions, which results in lower membrane efficiency from precipitation. Membranes can be regenerated through back-flushing techniques; however, long term exposure to alkaline conditions will eventually lead to membrane replacement at a significant expense.

Often, pH sensors are omitted from the Reverse Osmosis Systems to minimize initial investment expenditures. Integrating a pH measurement into the local RO control system requires significant programming efforts as well as hardware expansions to PLC's and wiring personnel to bring the signals into the controllers.

SOLUTION

Critical to the measurement is the pH sensor. The Model 3900 and 3900VP General Purpose pH Sensors from Rosemount Analytical can accurately monitor the pH of the water going into the RO unit. The ACCUGLASS™ glass formulation resists cracking, and the double junction prolongs the sensor's life. The sensor conveniently mounts via ¾" or 1" MNPT process connections, and a water tight variopol (VP) cable connection allows for quick sensor replacement.

The Model 3900(VP) can be used with the Model 6081P Wireless Transmitter, which is *WirelessHART*® 7 compliant. The Model 6081P utilizes power optimized electronics that extend the life expectancy of the intrinsically safe power module. The *WirelessHART* 7 feature eliminates any cable runs from the pH transmitter to the control system. The Model 6081P is automatically recognized on any compliant Gateway such as a Model 1420 as long as the wireless network ID and the network join key have been established for the device. The 6081P also transmits important diagnostic information on the sensor's health that may not be available with traditional PLC's.

INSTRUMENTATION

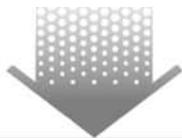
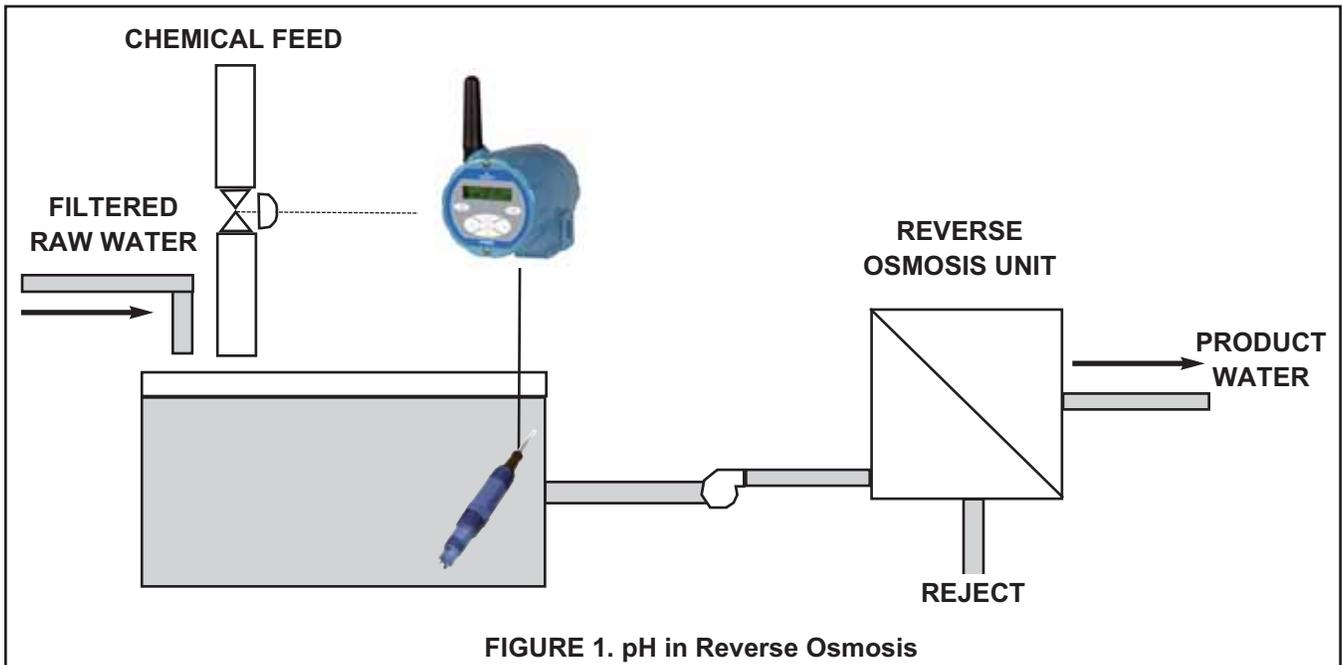
6081 pH Wireless Transmitter

- Self-organizing network for high data reliability and network stability
- Long life power module
- Industry leading wireless security
- Advanced Diagnostics with *WirelessHART 7*
- Easy to use local touch pad interface



Model 3900 and 3900VP General Purpose pH/ORP Sensors

- Extended sensor life provided by double junction reference.
- Rugged polyphenylene sulfide body, completely sealed to eliminate sensor leakage.
- Multiple mounting options, including 3/4" and 1" insertion and 1" submersion.



*The right people,
the right answers,
right now.*

**ROSEMOUNT ANALYTICAL
CUSTOMER SUPPORT CENTER
1-800-854-8257**



ON-LINE ORDERING NOW AVAILABLE ON OUR WEB SITE
<http://www.raihome.com>



Credit Cards for U.S. Purchases Only.



Emerson Process Management

2400 Barranca Parkway
Irvine, CA 92606 USA
Tel: (949) 757-8500
Fax: (949) 474-7250

<http://www.raihome.com>

© Rosemount Analytical Inc. 2011

