

Remote pH Monitoring



Success in this application can be applied to variety of other applications with similar challenges

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Facts about Ash Ponds:

- Leftover fly ash is turned into a slurry and sent to a containment pond to reduce the chance of spreading through the air.
- Due to strict federal and state regulations, ash pond leachate must be monitored and treated to avoid fines for non-compliance. For proper monitoring, ORP and pH need to be measured.
- Typically, ash ponds are located far away from the main power plant causing personnel to continuously leave the plant to do calibration and troubleshooting for pH and ORP. This is a significant drain on time and exposes personnel to potentially unsafe working conditions at the ponds.



Antiquated Analog Technology vs. M4 Knick Digital Loop

— Utilizing a Solar-Powered Engineer Solution

With traditional analog pH/ORP technology there are a number of challenges customers face.

An analog connection to the sensor is typically not submersible. M4 Knick's digital Memosens® sensor connections are inductive. This is unlike all other digital and analog systems which use a conductive non-submersible connection. To get around this manufacturers will "pot" the cable into the sensor which forces the customer to completely disconnect the cable from the transmitter.

When using Memosens smart digital technology, all calibrations are done in the analyzer shop or lab. **When the customer wants to replace a sensor they take a pre-calibrated sensor into the field and do a quick swap by disconnecting the inductive Memosens cable and connecting the new sensor.** The calibration information is automatically shared with the transmitter, and the system is ready to measure without additional steps.

Stratos Pro transmitters offer intuitive operation with color-coded user guidance for digital Memosens and analog sensors. The transmitter also provides extensive diagnostic func-

tions with Memosens sensors. Due to its low power consumption, the Stratos Pro is the perfect fit for use with a solar-powered system. Another benefit is the one button operation when exchanging pre-calibrated sensors. This minimizes the time personnel needs to spend out in the field for routine maintenance.

The M4 Knick solar-powered system is an "off-the-shelf" solution which makes expanding the system and acquiring spare parts very easy. Customizable battery features make the system perfect for areas of the country where multiple cloudy days are common. This system utilizes the Pepperl+Fuchs Bullet — loop-powered wireless transceiver. The Bullet is HART compliant and has the ability to send HART variables wirelessly to the HART wireless gate-way. Multiple Bullets can act as a "mesh" network which means that each one can receive and transmit the signal of any other Bullet in the network effectively acting as a repeater to cover long distances.



What was this Customer's Return on Investment?

- **Reduced Sensor Replacements & Maintenance Costs:**
Using the M4 Knick SE 555 and Stratos Pro transmitter greatly reduced the need for calibrations and the frequency of sensor replacement, which means fewer sensors being used.
- **Reduced Wiring Costs:**
M4 Knick suggests using a Pepperl+Fuchs Bullet (a loop-powered Wireless HART adapter). Since the solar system uses an on-board battery, the customer reduced their installed cost because there was no need to run conduit across the plant to the main control room.
- **Less Exposure to Hazardous Conditions:**
The lower frequency of calibration and greater reliability provided for fewer trips to the Ash Ponds. This reduced risk to plant maintenance personnel.