

Hot-Swap Sensor Maintenance

What is Hot-Swapping?

"Hot swapping is a relatively new, but simple concept that has transformed the way we manage and maintain sensors. It results in much fewer hours spent cleaning and calibrating sensors, extending service life and improving accuracy"

- Brenton Ward, Turtle Tough Director

Traditional Scheme

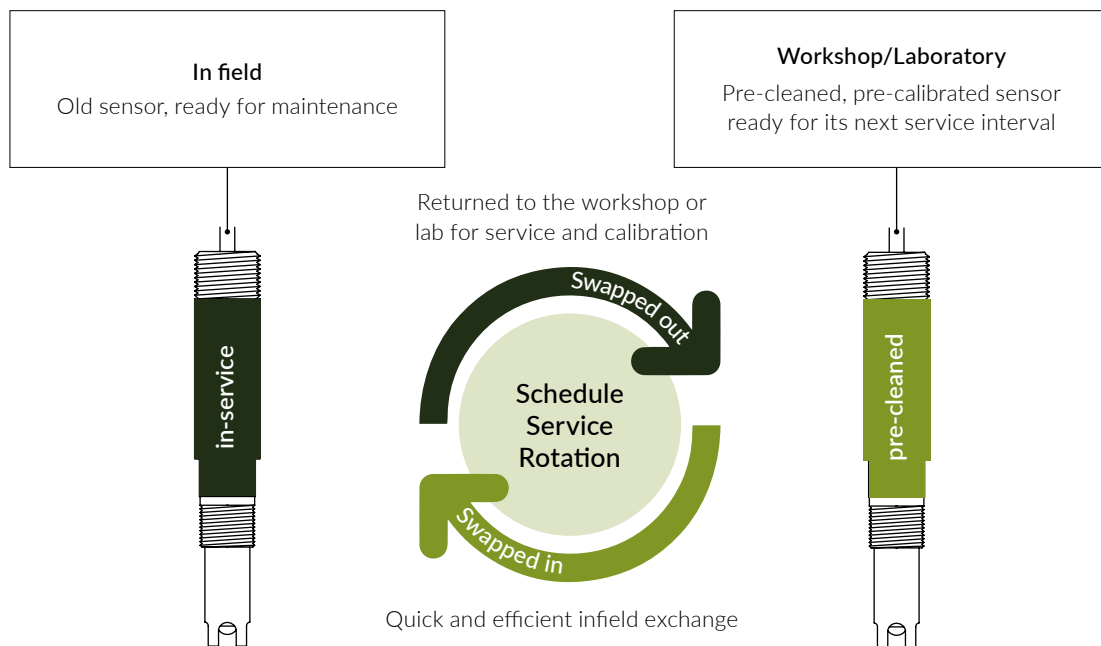
In a traditional installation scheme, a sensor must be connected to the infield analyser. Calibration must be performed on the in situ analyser. As a result, cleaning and calibration regimes tend to be time-consuming and sometimes ineffective due to:

- Working in harsh environments
- It is laborious for operators to cart cleaning equipment to each installation.
- Cleaning and calibrations tend to be rushed and are often done improperly or incompletely.

Hot Swap Scheme

Hot swapping involves the immediate exchange or "swap out" of an in-service sensor with a pre-cleaned, pre-calibrated sensor that is ready for duty. The old sensor is swapped out on a scheduled service rotation and is returned to the workshop or laboratory for service and calibration, whereupon it too is made ready for its next service interval.

This repeated process allows for quick and efficient infield exchanges and facilitates extremely time and cost effective maintenance of rotated sensors.



The Hot-Swap service and maintenance regime is highly recommended for users that have:

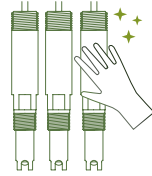
- A large number of installation points and expend significant manpower on maintaining sensors
- Sensors that rapidly foul and require mechanical cleaning
- Very stringent calibration accuracy and high frequency of calibration
- High-process temperatures or any situation where the sensor requires significant time to reach thermal equilibrium
- Sensors in remote, difficult to access or hazardous locations
- Installations in inclement weather

Hot-Swap Benefits

Hot-Swapping significantly reduces the challenges of infield calibration

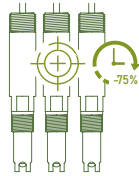
Sensors can be batched cleaned in large numbers, creating many efficiencies.

eg. instead of waiting for each sensor to soak individually they can all be soaked at one.



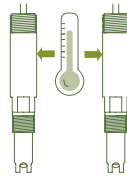
Sensors can be batched calibrated.

Batch processing sensors in this way reduces time by approximately 75%



Sensors are calibrated in a controlled environment reducing calibration errors that can occur in the field.

Because the sensors are at thermal equilibrium you are not waiting for a sensor to return to ambient from the process temperature which can take a significant amount of time.



Sensors can be stored in conditioning solution between uses.

This optimises their performance and rejuvenates them in between service shifts. You can expect an improvement in sensor lifespan of around 30% when a sensor is cared for in this way.



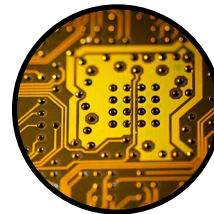
Sensor cleaning and calibration can be done offline, in the comfort of the laboratory or workshop environment



All this is made possible because a Smart DSS Sensor is a self-contained unit, embedded with an onboard microprocessor and memory that fulfils the job of the analyser. It can store calibration data and output a fully compensated signal, and as such, it can be calibrated anywhere offline away from the main analyser.

Quick connect plugs facilitate seamless plug n play to the infield analyser.

Nothing need to be done to the analyser, simply plug the new sensor in and it will be automatically recognised by the analyser.



Direct Smart Sensor with onboard microprocessor and memory that fulfils the job of an analyser.

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Turtle Tough DSS Series compatible with a Hot-Swap Regime



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[DSS Smart Touchscreen Controller](#)