



MTS Echo[®] Monitoring – HPU

Proactively protect your hydraulic power unit from common failures

Benefits

- » Test schedule predictability
- » Test system lifecycle extension
- » Data integrity
- » Budget management
- » Cost Saving

Compatible HPUs

- » MTS SilentFlo™ 505 & 515 HPUs
- » MTS SilentFlo™ 505 G1 HPUs*
- » MTS Model 506 HPUs*

* With upgraded controls, HMI information can also be monitored

MTS Echo Monitoring helps ensure the maximum operating performance and service life for your hydraulic power unit (HPU). MTS Echo Monitoring provides the tools to properly identify threats to hydraulic system health and keep your system in optimum condition.

With MTS Echo Monitoring, a modular set of options allows you to choose the level of monitoring that best meets your needs. With the Connectivity hardware as a base, you can add packages to monitor temperature, fluid condition, heat exchanger performance, oil flow, energy usage and more from any web-enabled device, including smartphones, laptops and tablets.

Each package provides the core sensors necessary for the real-time monitoring of signals. You will be able to set user-defined alerts to notify you of potential concerns. You will also have access to interactive trending data and a health dashboard that offers actionable recommendations for intervention and maintenance.

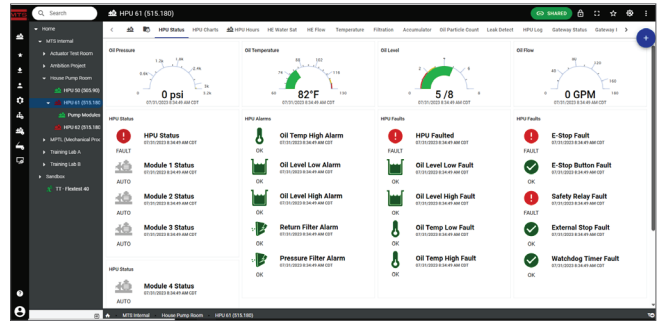
With 24/7 access to system performance measurements and trends over time, you can maintain your hydraulic systems in the most efficient manner. Condition-based monitoring allows for early detection of potential issues and prevents unnecessary downtime for unneeded maintenance which saves money and unneeded maintenance costs. Convenient, secure connection to hydraulic system condition parameters will help you make the best decisions regarding HPU operation.

MTS Echo Monitoring: Standard Recommended Packages

Protect your HPU investment and ongoing lab operations with 24/7 Monitoring of your HPU. Start with the recommended packages and add-on for extended protection.

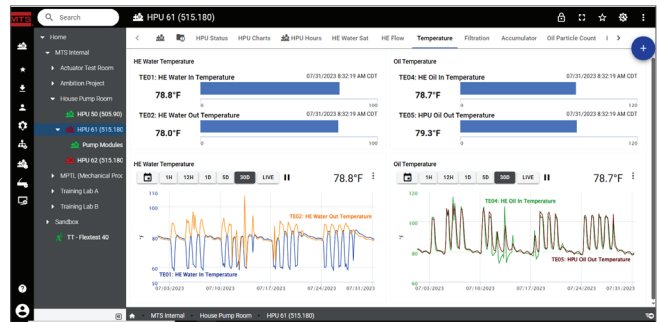
All MTS Echo Monitoring packages provide:

- » Core sensors
- » Real-time monitoring of signals
- » User-defined alerts
- » Interactive trending charts
- » Health dashboard



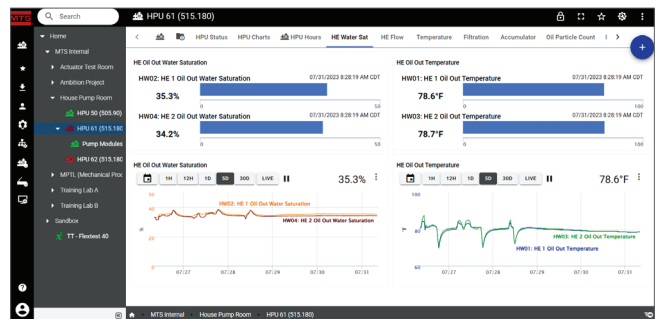
Temperature Package

Monitor HPU temperatures for early detection of an over-temperature alarm or fault. These fault notifications can prevent unplanned downtime and minimize the risk of downstream damage. Maintaining a stable temperature is critical to the performance of your test system. Elevated temperature is also indicative of potential system failure.



Fluid Contamination Package

Hydraulic power units and servovalves can be damaged by fluid contaminated with particles that are larger than the clearance between lubricated surfaces. These hard particles create more wear contaminant by continually scraping off softer metals, like copper, to further accelerate component failures. This package will help identify conditions that may lead to motor shelling, pressure instability and servovalve instability.

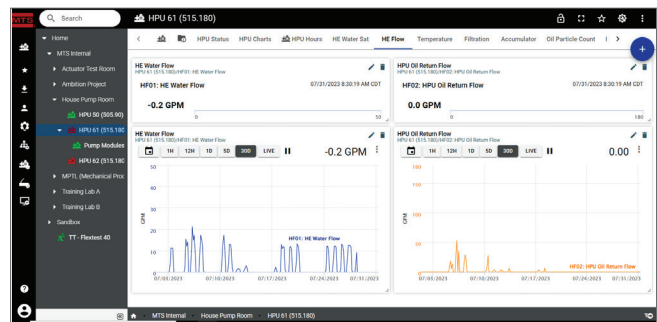


Heat Exchanger Water Saturation Package

This package monitors parameters necessary to provide early detection of heat exchanger failure. Excessive water saturation can have downstream effects on servovalves and test equipment.

Heat Exchanger Flow Package

This package monitors several parameters including changes in the thermal transfer over time and water consumption. Trending the water consumption can identify failed water solenoids or indicate when someone has forgotten to turn on the water supply, giving the operator time to turn on the supply and cool the hydraulic fluid to prevent an over temp shutdown. When combined with the temperature package, Heat Exchanger efficiency also can be tracked.



HPU Monitoring Packages Aligned to Common Failure Modes

Monitoring Packages	Over-Temp Faults	Heat Exchanger Failures	Contamination	Motor & Pump Failures	Catastrophe Prevention
Temperature	Yes	Yes, temperature	No	Wear & tear Fouling	Medium
Contamination	No	Yes, water saturation	Particulate contamination Water saturation	Wear & tear Fouling	High
Heat Exchanger Water Saturation	Yes	Heat Exchanger failures Cooling System failures	Water saturation	No	High
Heat Exchanger Flow		Cooling water flow			

MTS Echo Monitoring: Additional Packages

Extend fault protection with additional standalone packages.

Power Monitoring Package

Expand your protection by monitoring your HPU power, including 3-phase voltage, current and energy consumption. This package provides insight into HPU efficiency and enables early warning of pump or motor failures. This package can give you visibility to energy consumption and help improve energy management.

Accumulator & Filtration Packages

Manage hydraulic distribution by monitoring accumulators and filters. Remote monitoring will indicate which accumulators need charging so the hydraulic distribution system can readily manage flow demand. Monitoring filtration can help detect inadequacies that may lead to actuator scoring and potential component failure. The predictive trending and analytics provided in this package will optimize maintenance.

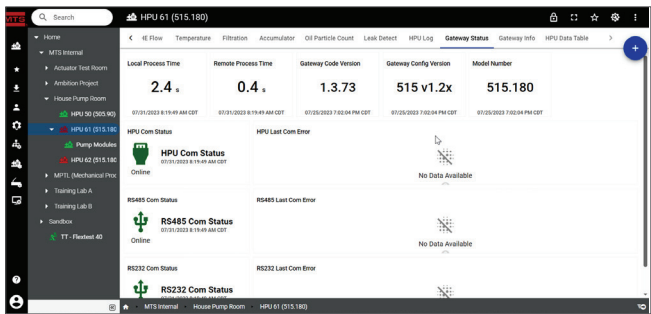
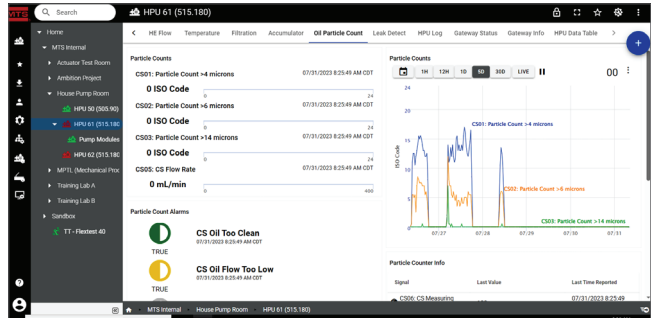
- » High-Pressure Filtration Package
- » Accumulator Pre-Charge Package
- » Return Filtration Package – monitoring both filtration and accumulator pre-charge.

Leak Detection Package

Protect your lab and the environment by monitoring for early detection of hose rupture, manifold failures and fitting leaks. Improve environmental health and safety while protecting against catastrophic hydraulic fluid loss. Package includes four (4) sensors with standard 12 meter cable length. Additional sensors and cable lengths are optionally available.

Firewall Package

The firewall package includes a hardened security appliance which adds a layer of protection between the hydraulic power unit control network and required internet connection. This security appliance can also be configured to create a dedicated secure port for outbound messages to the Echo Monitoring cloud platform.



HPU Monitoring Packages Aligned to Common Failure Modes

Monitoring Packages	Over-Temp Faults	Failure Modes	Motor & Pump Contamination	Catastrophe Failures	Prevention
Power	No	Energy usage	No	Early fault detection possible	Low
Accumulator Pre-charge and Filtration	No	Output pressure accumulators Clogged filters	No	No	Medium
Leak Detection	No	Hose rupture Fittings Manifold failures	No	No	Low



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