

# Timken upgrades Mark Series controller family



Mark 8 system features multiple improvements over predecessor. By **DJ Slater**

**T**he Mark Series controller family gained another member this year with the release of Timken Co.'s Mark 8 Synchrotorque control system from Philadelphia Gear, part of Timken Power Systems. The system, designed for variable speed and soft-start hydroviscous drives, looks to improve the user experience with "over a half-dozen improvements" from the prior model.

"The past series of controllers, as well as the Mark 8, have features that were

common within the complete product line," said Eric Mielke, control integration engineer with Timken Power Systems. "The Mark 8 was designed for our customers who need customized operations to fit within their unique applications. It is much easier to integrate into existing control systems without additional components, such as a third-party PLC."

The Mark 8 controller works as a closed-loop feedback device using the clutch output shaft-controlled parameter as

feedback. The input command signal is automatically and continuously compared to the output shaft-controlled parameter, an error signal is generated, and the clutch clamping pressure is continually adjusted electro-hydraulically to maintain input command signal.

Improved operations and ease of maintenance and monitoring were the primary drivers for the upgraded control system. The Mark 8's prominent feature is a one-touch menu screen for easier programming and deeper data reporting. The system also has a built-in trending screen for fine tuning the controller. Previously, users had to rely on a laptop to make the same adjustments, Mielke said.

## Genesis of the Mark family

Other convenience-based enhancements include the ability to make software updates to the system via an Ethernet connection or a flash drive; accessing diagnostics through a line graph visual; and using a new alarm/fault log database to swiftly handle system troubleshooting. The database can capture up to 100 faults to help users recognize and solve issues at an expedited pace.

The Mark 8 also can recognize additional remote I/Os, as well as allow a user to add it

Features and Benefits	Mark VII Controller	*Mark 8 Controller
Simplified modular construction	✓	✓
I/O modules on one common bus for easier upgrades and connections		✓
I/O modules connected with single CAN network cable to the HMI controller		✓
Same size NEMA 4 enclosure to fit in existing footprint	✓	✓
Alarm log tracks up to 100 notifications, including date and time stamping		✓
Controller maintenance troubleshooting kit for on-site repair (available for purchase)	✓	✓
Improved, user-friendly parameter menu screen for easy programming		✓
Upgraded, easy-to-read color HMI touch screen display		✓
USB flash drive or Ethernet inputs for quick updates		✓
Single password access to assigned parameters		✓
Built-in trending screen replaces laptop interface for fine tuning the controller		✓

**The Mark 8 controller has several added features compared with the Mark VII.**



**The Mark 8 controller features a one-touch menu screen for easier programming and more comprehensive data reporting compared with prior Mark Series models.**



**The Mark 8's internal components are protected by a NEMA 4-rated steel enclosure with the same footprint as the Mark VI and Mark VII variants.**

controller – the Mark I – debuted in 1969. Its purpose mirrors its successors – to function as a mechanical, variable-speed device that can control the output speed of equipment up to 100% lockup.

The Mark Series family uses signals from the Synchrotorque drive, or a user's control system, to accurately regulate the clamping pressure between input drive plates and output friction discs for variable output speed and torque control. The controller family also works for soft-start systems, protecting drivetrain components from the perils of rapid or high-torque startups.

The Mark 8 uses the same enclosure and footprint as its two predecessors. A 16 X 12 in. (406.4 X 304.8 mm) NEMA 4-rated

steel enclosure houses the system, making it suitable for indoor or outdoor use, Mielke said. The enclosure provides protection for users (keeping the components secure), as well as against the elements, such as rain, sleet, snow, dust, dirt and water. The internal components are also protected if ice forms on the enclosure, he said.

The Mark 8 controller is ideal for common applications that require variable speeds, such as compressors, pumps, fans and test stands, among many others, Mielke said.

The Mark VII controller, while still available in limited supply, is no longer being produced by the company. As with all Mark Series upgrades, hardware and software support is no longer provided for all Mark 8 predecessors.

"We have received several inquiries for upgrades to existing systems in the field," Mielke said. "Customer feedback – has been positive. We're excited about its potential."

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to their Ethernet network for remote control. The touchscreen can also be customized to match the user's preferences and to make it more visible in nearly any environment and condition.

The Mark 8 adds to a long history for this specific equipment. The first Mark Series

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