

Motion System Upgrade

Background

Westinghouse, through its subsidiary PaR Nuclear, Inc., has developed a packaged solution to modernize obsolete and aging motion systems using Schneider Electric Altivar motor drive technology. This design has undergone extensive testing and is now available so that customer equipment operates reliably and predictably.

Description

The Westinghouse/PaR Nuclear motion system solution provides:

- Direct replacement requiring only minor modifications to existing software, wiring and other ancillary equipment
- Backwards compatibility with all motor and feedback device types
- More compact size and lower weight for comparable horsepower ranges

- Local digital display with descriptive programming text in an easy-to-use configuration
- Programming via digital display keypad or computer software
- Global sourcing with off-the-shelf components and an open architecture (nothing proprietary)
- Increased machine reliability and predictability using a proven and tested design
- Improved tolerance to a broader range of environmental conditions, such as temperature and humidity

The hardware components include:

- Drive – main power unit
- Drive – communication cards (when applicable)
- Drive – motor feedback card (when applicable)
- Drive – I/O cards
- Cyber security compliance
- Interface and associated control hardware included (as-required)
- Optional encoder positioning system upgrade to DeviceNet™

Benefits

The DeviceNet™ positioning system provides:

- Significantly higher noise immunity to electrical interference than conventional encoder communications – Improved system reliability and reduced downtimes related to “nuisance” trips.
- Plug and play – Simply set the DIP switches in the encoder and reset the “zero” position on the human-machine interface (HMI).
- Programming from the programmable logic controller (PLC) not necessary – Configure the fully programmable features of the encoders from the user-adjustable parameters secured on the HMI.
- Lifetime position memory retention – The absolute encoders remember their position after power disruptions. There is no need to reprogram when power is restored; machine operations simply continue.

- Improved traceability and security – All encoder information is logged, including changes to the user-adjustable parameters.
- Cyber security compliance – The DeviceNet™ architecture is a deterministic network with a memory function designed to intrinsically respond to intrusion, tampering and other intentional or unintentional actions by alerting the utility.

Key elements of the Westinghouse/PaR Nuclear solution include:

- Modified applicable engineering drawings
- Motor drive and related hardware equipment kit for installation into existing equipment
- Modified applicable PLC and HMI software
- Motor drive programming software
- Optional encoder positioning system

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