

# Nuclear Instrumentation System New Drawers – Original Design

## Background

The Westinghouse original ex-core Nuclear Instrumentation System (NIS) has been protecting nuclear plants for over 40 years. Industry experience has proven the design to be robust, reliable and effective.

Westinghouse continues to manufacture new NIS drawers to the original design. Where obsolescence issues have occurred, Westinghouse has developed qualified, modern replacements.

New NIS drawers allow plants to cost-effectively improve reliability by replacing old equipment without retraining personnel, rewriting procedures and pursuing licensing changes.

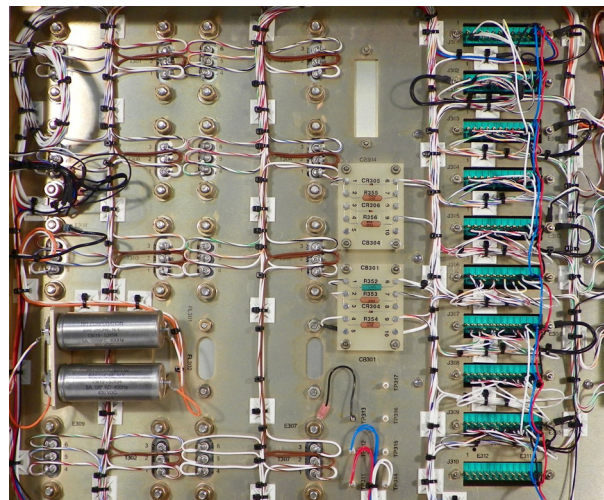
## Description

Westinghouse continues to manufacture all of the original NIS drawers, modules and cables, including:

- Source range
- Intermediate range
- Power range A
- Power range B
- Audio count rate
- Comparator and rate
- Flux deviation and miscellaneous control and indication
- Source range preamplifier
- Signal difference amplifier
- Console cables



New source range drawer with factory-installed high voltage cutoff upgrade



New NIS drawers restart the clock on aging wiring and components.

Westinghouse also continues to sell the timer/scaler module.

## Benefits

- New drawers prevent problems due to aging wires, components and connectors.
- No training changes are needed.\*
- No procedure changes are needed.\*
- No licensing changes are needed.\*
- Latest qualified replacement parts are used.
- Existing spare parts inventory is usable.
- Updated drawings are provided.
- Colored wires facilitate troubleshooting.
- Improvements such as card cage captive screws and LED indicator lamps are included.
- Equipment qualifications are maintained.

\*Depending on upgrades chosen

## Upgrades

The following upgrades can be factory-installed when new drawers are built:

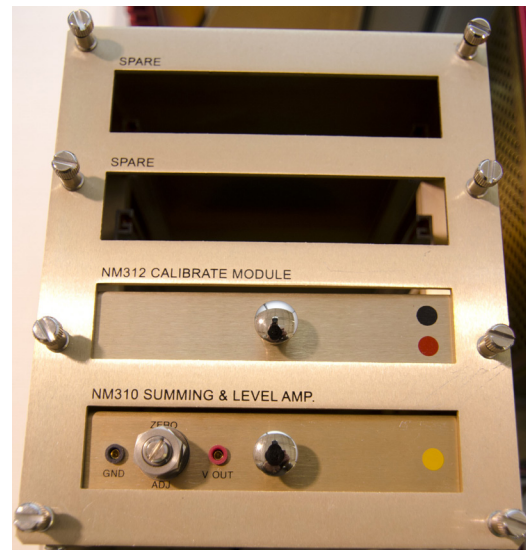
- Source range high voltage cutoff
- Power range increased sensitivity
- Power range A & B digital meters
- Flux deviation time delay

A timer/scaler LED upgrade is also available.

Westinghouse can provide licensing support, field change notices, drawing updates, technical manual updates and installation services.

## Refurbishment

In addition to providing new NIS drawers, Westinghouse refurbishes drawers that have been in service or long-term storage. Refurbishment includes replacement of age-sensitive parts (potentiometers, electrolytic capacitors, lamps, power supplies, relays and selected semiconductors). Parts such as wire with degraded insulation and bent connectors are also replaced. The drawers are thoroughly cleaned, inspected and tested prior to certification. Only qualified parts controlled under 10CFR50 Appendix B are used. Replacement of failed major components is considered a repair, not a refurbishment. The customer is notified prior to any repair actions.



Improved card cage with captive screws



Digital meters upgrade – Factory-installed during a new drawer build

## Experience

Since 2004, Westinghouse has provided over 80 new NIS drawers, 40 modules, and hundreds of console cables to more than a dozen nuclear plants.

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