

# Global Instrumentation and Control

## Nuclear Instrumentation System

### Updated 25 Volt Power Supply

#### Background

The Westinghouse original ex-core Nuclear Instrumentation System (NIS) has been protecting nuclear plants for over 50 years. Industry experience has proven the design to be robust, reliable and effective.

Westinghouse actively supports the original NIS with upgrades and replacements such as the updated 25 volt power supply. This power supply is a direct replacement for the original 25 volt power supplies. Westinghouse also continues to sell and repair the original power supplies.

The updated power supply produces less heat, is designed for even higher reliability and provides status LEDs to facilitate troubleshooting.

#### Description

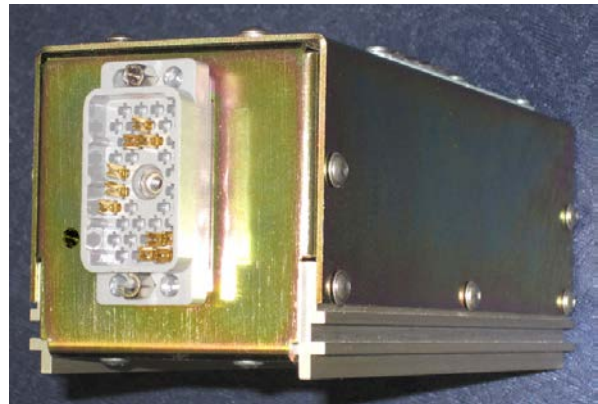
The updated 25 volt DC power supply is part number PMI0204 and directly replaces the original 25 volt power supplies, part numbers UPM-44KW and 2384A23H05.

The updated power supply has the advantages of modern design and components. Like the original power supply, it provides 25 Vdc at up to 1 amp, with 10 mV or less ripple. The new design improves on the original with reliability enhancements and LED status indicators. The power supply contains no microprocessors or firmware.

The updated power supply is seismically and environmentally qualified as class 1E in accordance with the IEEE 323-1983 and 344-1987 requirements. It is also qualified to the electromagnetic and radio frequency interference requirements of Regulatory Guide 1.180.



*The updated power supply can be used in the NIS source range, intermediate range and power range B drawers.*



*The updated power supply has the same connector and mounting rails as the original for easy replacement.*

## Benefits

- **Status LEDs enable rapid troubleshooting**

The power supply status LEDs add a powerful new troubleshooting tool to the NIS drawers. Drawer or power supply problems are evident at a glance, which simplifies troubleshooting.

Diagnostic circuits monitor power supply voltage, current and ripple. The LEDs indicate normal conditions as green and abnormal conditions as red. The LEDs latch to yellow to indicate conditions that have occurred and cleared. The reset button clears any latched indications.

In addition to indicating power supply conditions, the status LEDs can warn of problems elsewhere in the drawer, such as excessive current draw and disruption of AC power.

- **Lower heat generation – longer life**

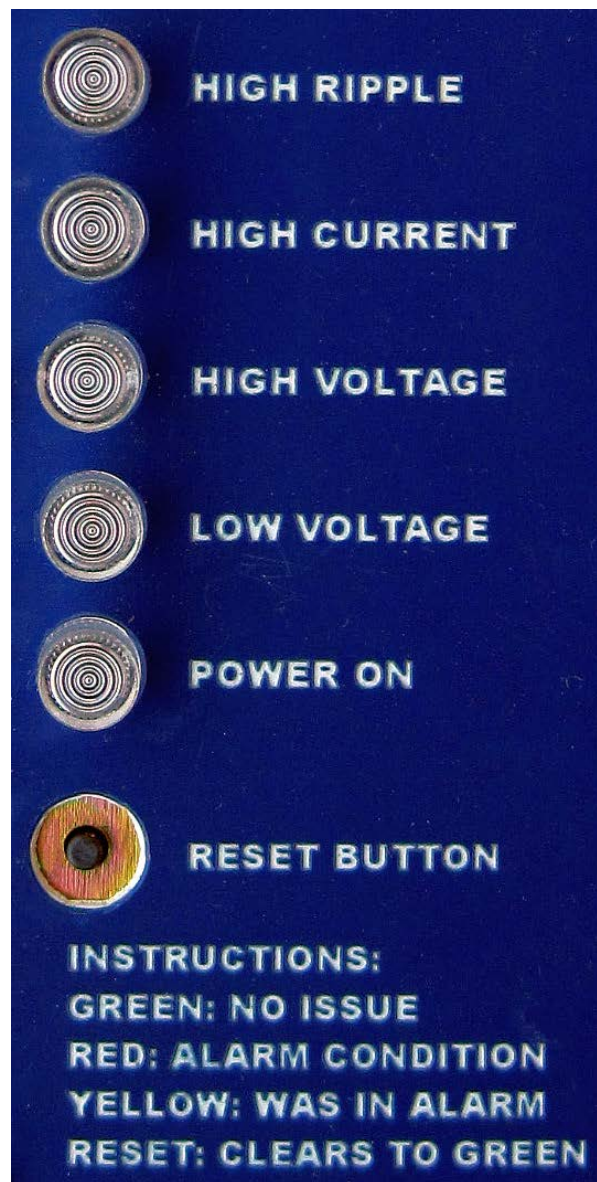
The updated power supply is a modern switch-mode design. It operates more efficiently and cooler than the original linear power supplies. Less heat generation leads to less component stress and longer life.

- **Improved reliability**

The new power supply uses a bank of capacitors vs. a single capacitor to filter ripple. The capacitor bank shares the ripple load, operating with less component stress for higher reliability.

- **Improved voltage adjustment resolution**

The voltage adjustment uses a foil style potentiometer instead of a wire-wound potentiometer for finer adjustment.



*Status LEDs provide useful troubleshooting information.*