Long-Term Uninterruptible Power Supply

CASE ID: UA 543-22 & UA 544-22

BACKGROUND

An uninterruptible power supply (UPS) is known to provide backup power on the order of minutes for electronic systems during main power source outages. However, backup power on the order of days is desirable for some electronic systems and applications.

DESCRIPTION

To address this problem, UAF researchers have designed and built a long-term UPS.

- Highly reliable runtimes of days for a few hundred watts of total equipment power consumption
- Connects to external high-capacity batteries
- Remote monitoring of current and voltage per battery
- Simple Network Management Protocol (SNMP) monitoring: web-based visualization and control
- For equipment that mostly runs on 12V (10-15V) battery directly, but has 12V regulated and AC as well
- Integrated Power Distribution Unit (PDU): each output is relay controlled and can indicate on/off status
- All relays are latching; updates and controller failure do not change power flow
- Modular design allows for easy customization and scalability as needed
- Double conversion design; no direct AC from input to output
- Monthly self-test to confirm and track battery health
- 19” rack mount

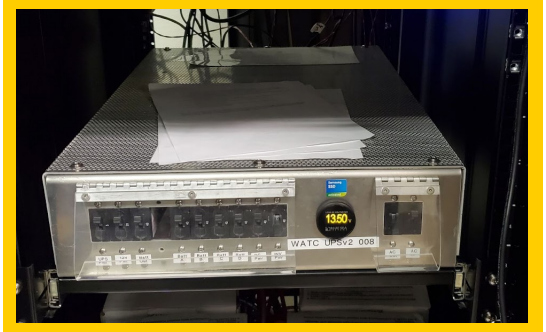

Figure 1. Long-Term UPS

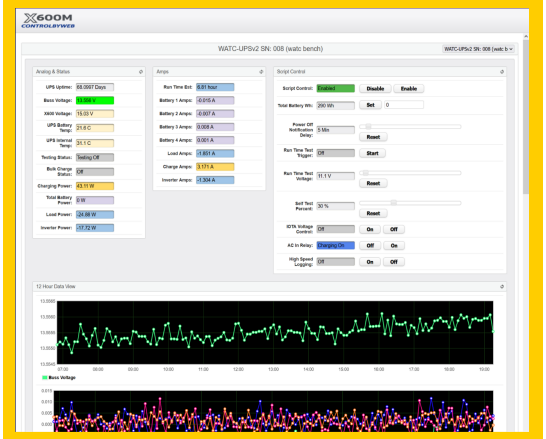

Figure 2. Web Interface

APPLICATIONS

- International Monitoring System stations (e.g., seismic and infrasound)
- USGS, UNAVCO, NOAA, CTBTO systems

INTELLECTUAL PROPERTY

- Trade Secrets
- Copyright

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