

A blue-toned world map serves as the background, with numerous small black dots indicating the locations of seismic stations across all continents.

SPS

PROJECT



Peter Davis, IGPP •

INTERNATIONAL DEPLOYMENT OF ACCELEROMETERS

What is the SPS?

The SPS (Solar Power System) is a regulator that charges the system batteries from a solar array, manages the battery output supply to the system load and provides status logging/monitoring of overall power system performance. These functions are all integrated into a single wall-mounted device.



What does it do?

- Regulates the solar array voltage
- Charges the primary battery bank in the most efficient manner
- Protects batteries from deep discharge with an LVD (Low Voltage Disconnect)
- Provides IP connectivity with both the charger and the LVD
- Allows queries of operational charger or LDV parameters via a multi-function display mounted on the face of the unit
- Offers lightning protection at the solar array input and the battery/load output

What problems does it solve?

1. It increases personnel safety.

- Integrated system means that there are no exposed device-to-device wires between components typical of discrete “building-block” systems.
- Essentially all of the dangerous DC voltages are contained within the sealed SPS cabinet.

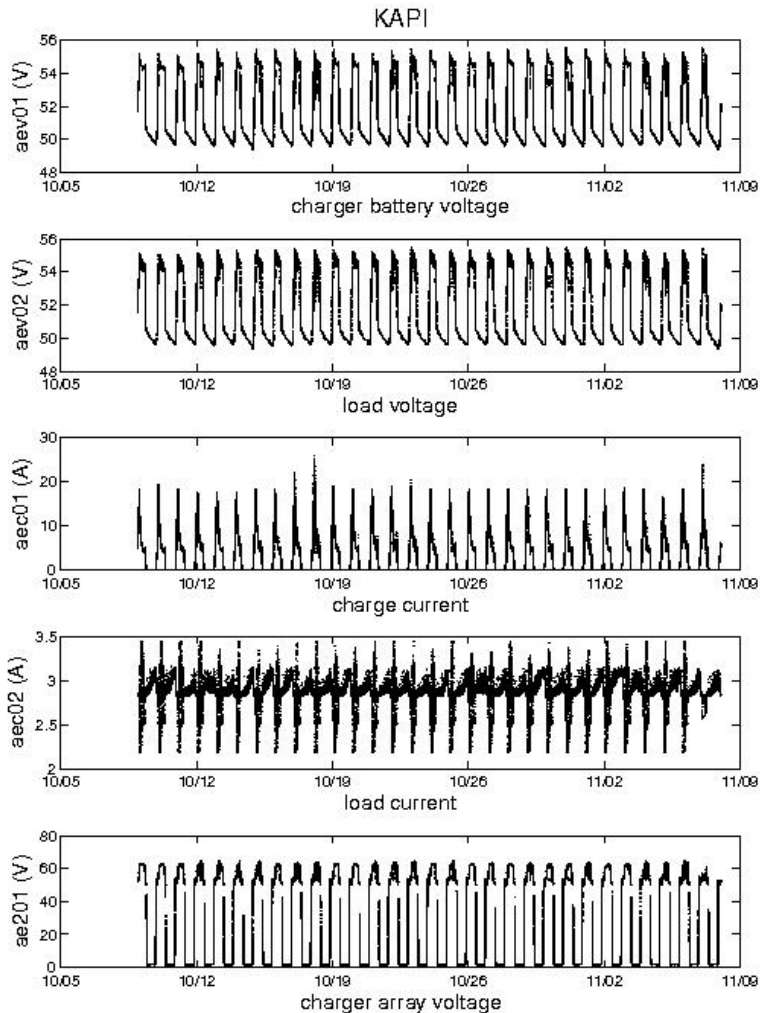


What problems does it solve?

2. Faster and easier field installation.

As the SPS is a single wall-mounted device, with all the internal device-to-device wiring already completed, installation is quick and uncomplicated:

- mount the unit on the wall
- connect the solar array
- connect the batteries
- connect the battery temperature sensor
- connect the battery sense probe wires
- connect the load
- connect the ethernet cable



What problems does it solve?

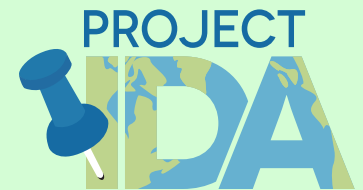
3. Adds IP connectivity/
monitoring for both charger
and LVD that was not
available in < 2500 watt
systems

What problems does it solve?

4. Via its IP-based real-time monitoring system, **anomalous conditions are detected when they happen** so that operator intervention can be initiated immediately.
5. Recordings from the IP-based real-time monitoring system allow **accurate post-mortem diagnostics** of station power problems.
6. **Simple on-site repair.** In the event of failure, any of the COTS devices utilized by the SPS can be replaced individually with standard hand tools.

Is there a COTS solution?

Yes, but not completely. The SPS simply packages all the individual COTS devices' features that IDA requires into a single, pre-wired, easy-to-install product.



Features:

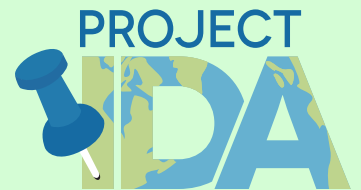
- low total parasitic power consumption of 8 watts
- 150 VDC maximum solar input
- 45 (optional 60) ampere continuous battery charge
- 45 ampere load (via LVD) output capability
- LVD typically set at 44.4 volts (adjustable)
- LVR typically set at 50.4 volts (adjustable)
- internal PV, BATT and LOAD circuit breakers
- internal lightning protection at the solar array input and the battery/load output
- internal MODBUS-IP bridge configurable for static or DHCP IP
- compact size, 16x17x6 (HxWxD")

Questions?

Contact Glen Offield at SIO...
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What does it do?

- **regulates the solar array voltage** via MPPT (Maximum Power Point Tracking) technology and **charges the primary battery bank in the most efficient manner** to ensure long battery life
- contains an **LVD (Low Voltage Disconnect)** to **protect those batteries from deep discharge** during periods of poor solar energy or failure in the charging system
- contains a MODBUS-IP bridge providing IP connectivity with both the charger and the LVD allowing critical performance characteristics to be recorded or queried remotely in real-time
- offers a multi-function display mounted on the face of the unit for local query of operational parameters from either the charger or the LVD
- offers lightning protection at the solar array input and the battery/load output

What problems does it solve?

1. It increases personnel safety. Essentially all of the dangerous DC voltages are contained within the sealed SPS cabinet. With this complete integration, there are no exposed device-to-device wires typically encountered with discrete "building-block" systems between charger, LVD, voltage taps, current shunts, surge arrestors, circuit breakers and blocking diodes.



No exposed device-to-device wires between components typical of discrete "building-block" systems.

Essentially all of the dangerous DC voltages are contained within the sealed SPS cabinet.

