EIFFAGE CLEMESSY

Solar Array Simulator

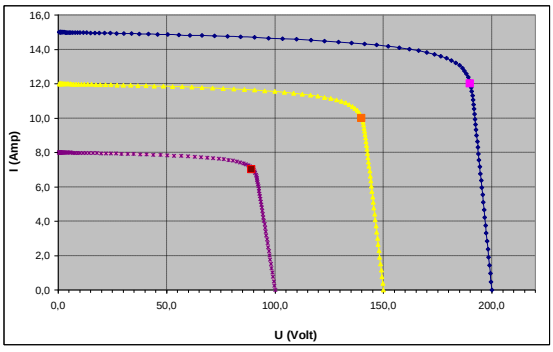
A Solar Array Simulation SCOE provides a highly safe simulation of solar array panels electrical power provision.

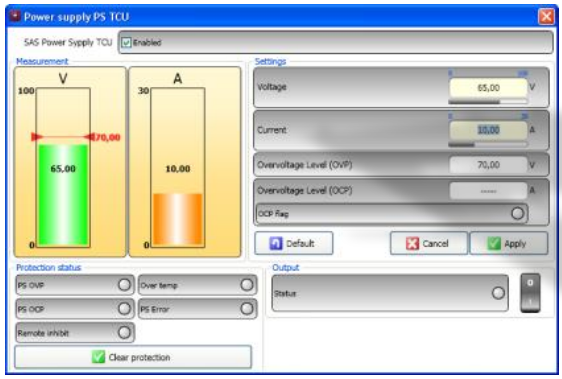
As a baseline, it provides the simulation of an adaptable and independent number of solar array power sections, delivering up to 3 KW or more per section, each of them fitted with standard over voltage and over current protection. It performs standard sunlight / eclipse simulation.

The SAS is based on COTS power supplies enhanced by Clemessy's SyCTRL products. It is designed as a self standing equipment with its own local GUI. It is fitted with self test and safety loop, embedded in standard 19 inch rack and container.

As options, it can be fitted with:

- Second level over voltage / over current protection, per section or per wing
- Specific sensor simulation (thermistor, cell sample, deployment switch etc.)
- Remote control via TCP/IP interface (CCSDS, FEECP, EDEN, PUS Services etc.)
- Mains Isolation Transformer Unit
- Output impedance adaptation
- Reusable container
- Interface harness to product under test
  - Ambient harness for ISO8 clean rooms
  - Thermal vacuum harness for TVAC chambers
  - Bulk head to vacuum chambers
  - Bio-burden harness for ISO7 clean rooms
  - Savers





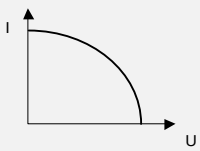
Solar Array Simulator — TECHNICAL DATA

Function

- Simulation of solar array power provision
- Sunlight / Eclipse transition simulation
- Sequential Switching Shunt Regulator (S3R) or Maximum Power Point Tracking (MPPT) simulation
- Solar array sensor simulation (thermistor, deployment switch, …)
- Second Level over-voltage, over-current protection
- User defined script features
- Remote and local control mode
- Self test capability
- Safety loop signal management (Inhibit input & Fault output signals)
- Interface harness to spacecraft

Implementation

- Power simulation by solar array power supplies



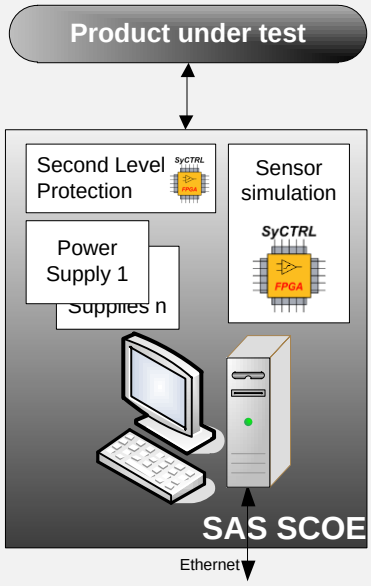
- Second Level Protection features based on SyCTRL
- Ethernet TCP/IP interface for remote control
- Windows man machine interface for local control
- 19'' rack integrated

Performance

- Unlimited number of sections
- Power per section — up to 3KW or more
- Protection reaction time — down to 30 µsec

Used technology

- Solar array power supplies (Keysight E4360B, Regatron TC.P.LIN or Rovsing RO-5100)
- Clemessy's SyCTRL Second Level Protection and TM/TC features
- LXI interface with power supplies
- Python script language



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