

Auxiliary Thermal Control System

Deliver programmable control of heat and power to your test article

Dynavac's Auxiliary Thermal Control Systems (ATCS) adds auxiliary heating and power to flight hardware during test periods. This flexible platform enables defining power channels and programming individual channel DC power output to match your test criteria.



System highlights

- Dynavac's Auxiliary Thermal Control System provides heating & power capability for hardware testing
- Flexible number of channels and a wide range of DC power output ranges can be supplied to meet your requirements
- Each channel can be controlled by voltage output, power output, temperature, and temperature ramp rate
- Operator monitors and operates all channels through a PC-based program
- Single or multiple power supply rack configurations available. Each rack is controlled by its own PLC
- Optional supervisory safety shut-off system available

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ATCS features

- Easy to use operator interface
- Configurable alarm and tend screens
- Test configurations can be stored and retrieved
 - Created custom recipes
 - Change multiple channel parameters using Dynavac's EZ Update Menu
 - Control channels from remote temperature reading
- Data stored in a text spreadsheet file and available ; downloadable via Servia port
- Tuned PID control
- Redundant thermocouple control

Hardware and software

- Robust hardware:
 - Compatible with power supplies from any manufacturer
 - Programmable logic controller architecture used for reliability and safety
 - Rack-mounted LCD monitor, keyboard, and mouse drawer
- Standard, widely-used software:
 - National Instruments LabVIEW
 - Microsoft SQL database

The screenshot shows the Main Control Screen for the Auxiliary Thermal Control System. The interface is organized into several sections:

- Channel Configuration:** Seven columns represent individual channels (CHANNEL 1 to CHANNEL 7). Each channel is configured for a "Solar Array" (Solar Array 1 to Solar Array 7). Parameters for each channel include: PROCESS VARIABLE (e.g., 20.1 Deg C), TARGET SPT (0.5 Deg C), ACTIVE SPT (0.5 Deg C), DEVIATION (0.0 Deg C), LOOP MODE (MANUAL), OUTPUT % (0.5 %), RAMP STATUS (HOLDING), RAMP TIME (00:00:00), RAMP RUN/HOLD, TC SOURCE (CTC A Only), VOLTAGE (0.0 VOLTS), CURRENT (AMPS), POWER (WATTS), and RECIPE (HOT RAMP1 or HOT RAMP2).
- Channel Range:** A section on the right allows selecting a range of channels. It includes "From Channel" (1) and "To Channel" (50) fields, a "Select Item" dropdown, a "Target Setpoint" field (0), a "Master Run/Hold" button (HOLD), and an "APPLY" button.
- Channel Parameter Config:** A button labeled "CHANNEL PARAMETER CONFIG SCREEN" is located below the Channel Range section.
- Print and Exit:** Buttons for "PRINT WINDOW", "PRINT REPORT", and "EXIT" are located at the bottom right.
- System Information:** The top of the screen displays "LOGGING DATA", "AUX THERMAL CHANNEL CONTROLS", "TEST 1015", "TEST CONFIG ON 10-15", the time "14:40:45", and the date "11/01/2022".

Main Control Screen