Cleanroom Control Systems
Improve Performance

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Centralized controls provide environment monitoring and control that can regulate and automatically adjust the clean-air cycling speed.

**BENEFITS:**
- Improved Maintenance Monitoring;
- Higher Throughput Yield;
- Lower Energy Consumption;
- Sensors & Control on one System.
When Cleanroom Compliance is not enough

* **MONITOR**
  * FFU performance
  * Occupancy and Cleanroom Performance demands
  * Critical room parameters (air-flow, air-exchanges, pressure, particle counts etc.)
  * Capture and store measurements

* **CONTROL**
  * Adjust FFU speed (stay compliant, optimize cleanroom performance)
  * Set-Back (clock-calendar unoccupied reduction)
  * Occupancy and Facility loading adjustments
  * Facility Integration (interface with Building Management System)

**RESULTS** - reduce down-time, improve yields, energy conservation
Control Systems - Popular Features

1. Global->Unit views/control Facility/Group/ Individual
2. Clock/Calendar Set-Back
3. Remote Set-Back, override
4. Emergency Shut-Down
5. Alarm
   1. Local alarm on Console
   2. Remote Alarm trigger
   3. Fault notification (sms text or e-mail)
6. Pressure Monitoring
7. Temperature/Humidity monitoring
8. Closed Loop Control
9. Particle Counter integration
10. Building Management Coordination
11. Data Logging
View and Control Levels
Set-Back for Energy Savings

Automatic Adjustment   Clock/Calendar

Occupancy Sensor Adjustment

System Settings
- set access level
- standby clock/calendar
- manage passwords
- set clock & enable alarm
- save & restore data
- set comm parameters

Set Standby Periods

SET-Back
SENSOR Monitoring

Individual Sensor Views (pressure)

Multiple Sensor Display (group view)
Particle Counters
Automatic Control Mode

Closed Loop Control
Building Management Coordination

Information Available:
- RPM of FFU
- Sensor
- Fault conditions of FFU
- Setpoint of FFU

Ethernet

Ethernet Info Exchange

FFU Daisy Chain

PC (or BMS)

CLEANROOM
Data Logging/Recording

Data from the sensors (or FFU units) can be recorded to the SD card installed in the ACC70xx and transferred for analysis.

![Save & Restore Data interface](image)
Set-Up assistance (i.e. ebm fan assign address)
# ACC7XXX Series Capabilities

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Display Type</th>
<th>LANS</th>
<th>MAX # OF GROUPS</th>
<th>ETHERNET</th>
<th>MAX # OF FFUs</th>
<th>CLOCK CALENDER</th>
<th>DATA LOGGING</th>
<th>DOOR INTERLOCK</th>
<th>ETHERNET</th>
<th>DOOR INTERLOCK</th>
<th>CLOSING LOOP</th>
<th>ALARM OUTPUT TO BMS</th>
<th>OCCUPANCY SENSING</th>
<th>REMOTE SETBACK</th>
<th>LIGHTING</th>
<th>FACILITY OPTIMIZATION</th>
<th>PARTITION COUNT</th>
<th>PARTICLE COUNT</th>
<th>ANIMATED CEILING GRID</th>
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<tbody>
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Cleanroom Controls - Summary

* Consolidate monitoring onto one common platform
* Measure and record critical data
* Advance warning for pending performance changes and issues
* Control and Adjust FFU units to maintain cleanroom performance
* Optimize performance to meet specific facility targets
* Reduce Energy consumption when possible

*ENVIRONMENTAL MONITORING
  * ADJUSTMENT IN REAL TIME
  * CLEANROOM CONTROL
  * PERFORMANCE OPTIMIZATION

RESULTS - Reduced down-time, Improved yields, Energy conservation
Thank You

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