Building Management Systems (BMS)

Seminar 1 – The Basics Explained

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Seminar 1 – The Basics Explained

1) What is a BMS?
2) What Does it Do?
3) Benefits
4) Operational Considerations

Seminar 2 - Advanced Management and Improvement Opportunities

5) BMS System Architecture
6) BMS Programming
7) Extended BMS Functionality
8) Upgrades and Retrofits

Industry Jargon, Terminology and Acronyms

- Building Management Systems (BMS) also known as Building Automation Systems (BAS), Building Management and Control System (BMCS), Integrated Building Management System (IBMS) Direct Digital Controls (DDC) and Building Controls,
- Other terms associated with Control Systems include:
  - Supervisory, Control and Data Acquisition (SCADA)
  - Programmable Logic Controllers (PLC)
  - Energy Management System (EMS)
  - Data gathering panels (DGP)
  - Modbus, Lonworks, and Bacnet – All refer to communications protocols
  - 'Front End' – legacy term used to refer to the BMS Operator Workstation
- Most Common Current industry term –
  - *Building Management System (BMS) or*
  - *Integrated Building Management and Control Systems (IBMS)*

What is a Building Management System?

- BMS systems are "Intelligent" microprocessor based controller networks installed to monitor and control a buildings technical systems and services such as air conditioning, ventilation, lighting and hydraulics.

- More specifically they link the functionality of individual pieces of building equipment so that they operate as one complete integrated system.

- Now installed in every major building or facility with the availability of direct integration into all other building services such as security, access control, CCTV, fire, Lifts and other life and safety systems.

- Current generation BMS systems are now based on open communications protocols and are WEB enabled allowing integration of systems from multiple system vendors and access from anywhere in the world.

What Does Intelligent Microprocessor Control Mean?

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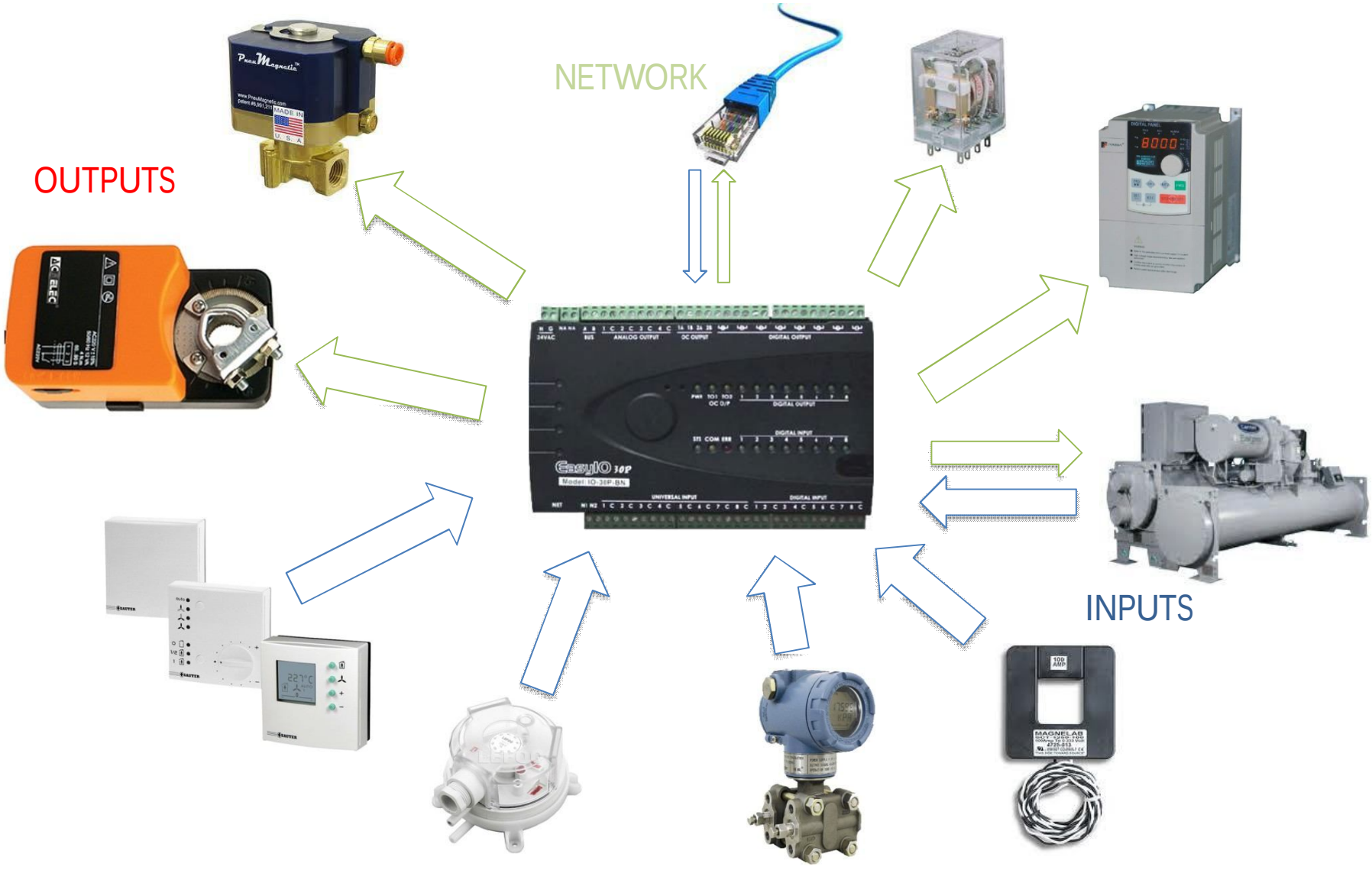


BMS Suppliers and Integrators

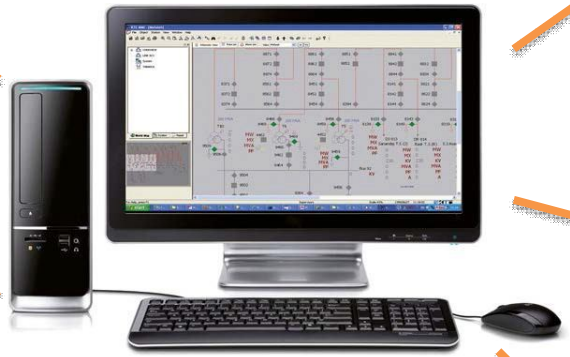
- Procured as a complete system that includes, engineering, supply, installation, programming and commissioning.
- Specialist Integrators that are either directly associated with the manufacturer or are approved re-sellers.
- All Integrators should have full factory technical support
- Need to work closely with Mechanical Services, Mechanical Electrical and other contractors.
- For new construction BMS is usually included within the mechanical or electrical services package.
- 'Tier 1 Company' only refers to a direct factory association and not to the quality of products or services…

Typical System Components – BMS Hardware

Range to Suit Applications

High Point Counts

Operator Workstations



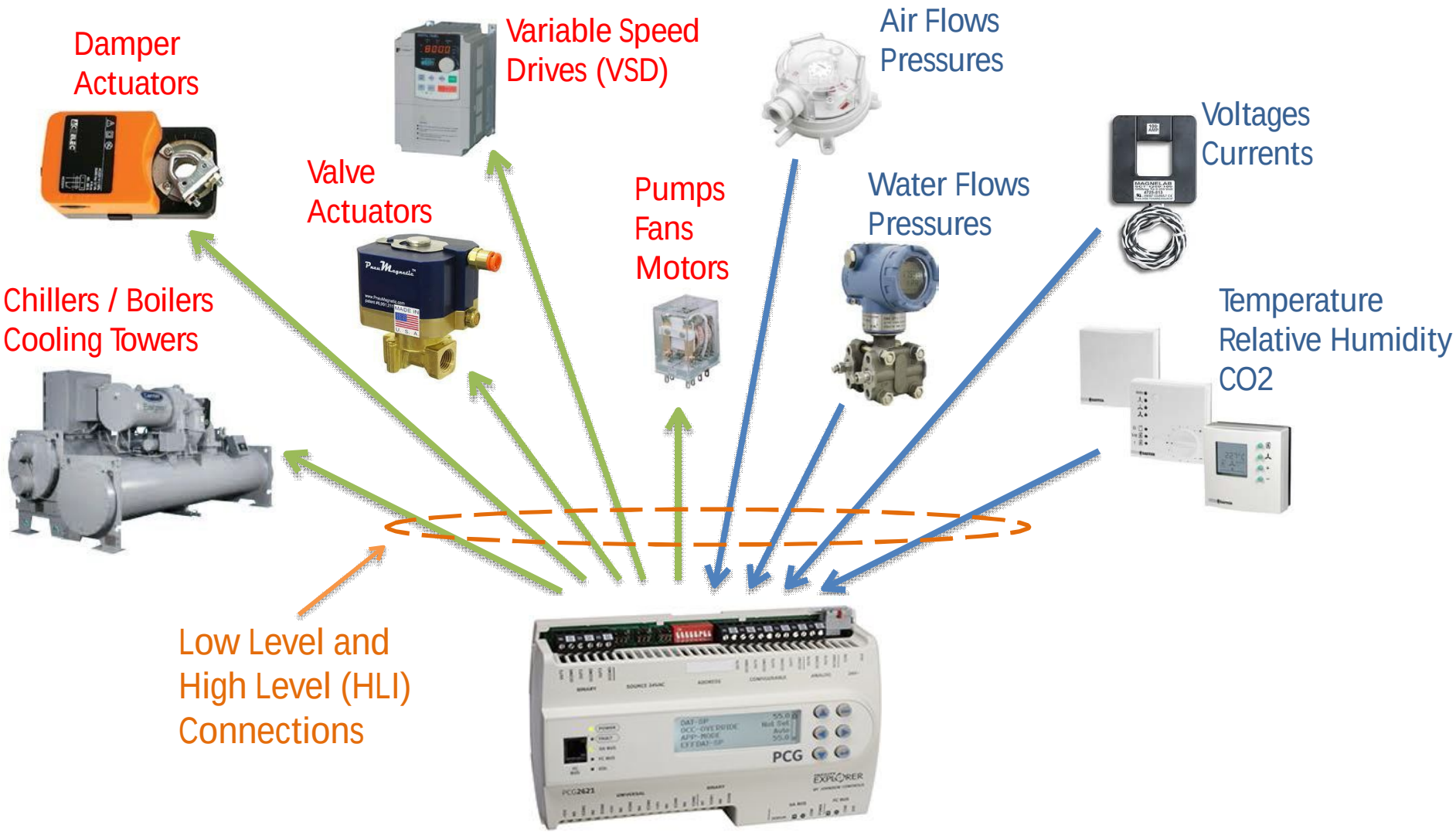
Built In Displays

Limited Features

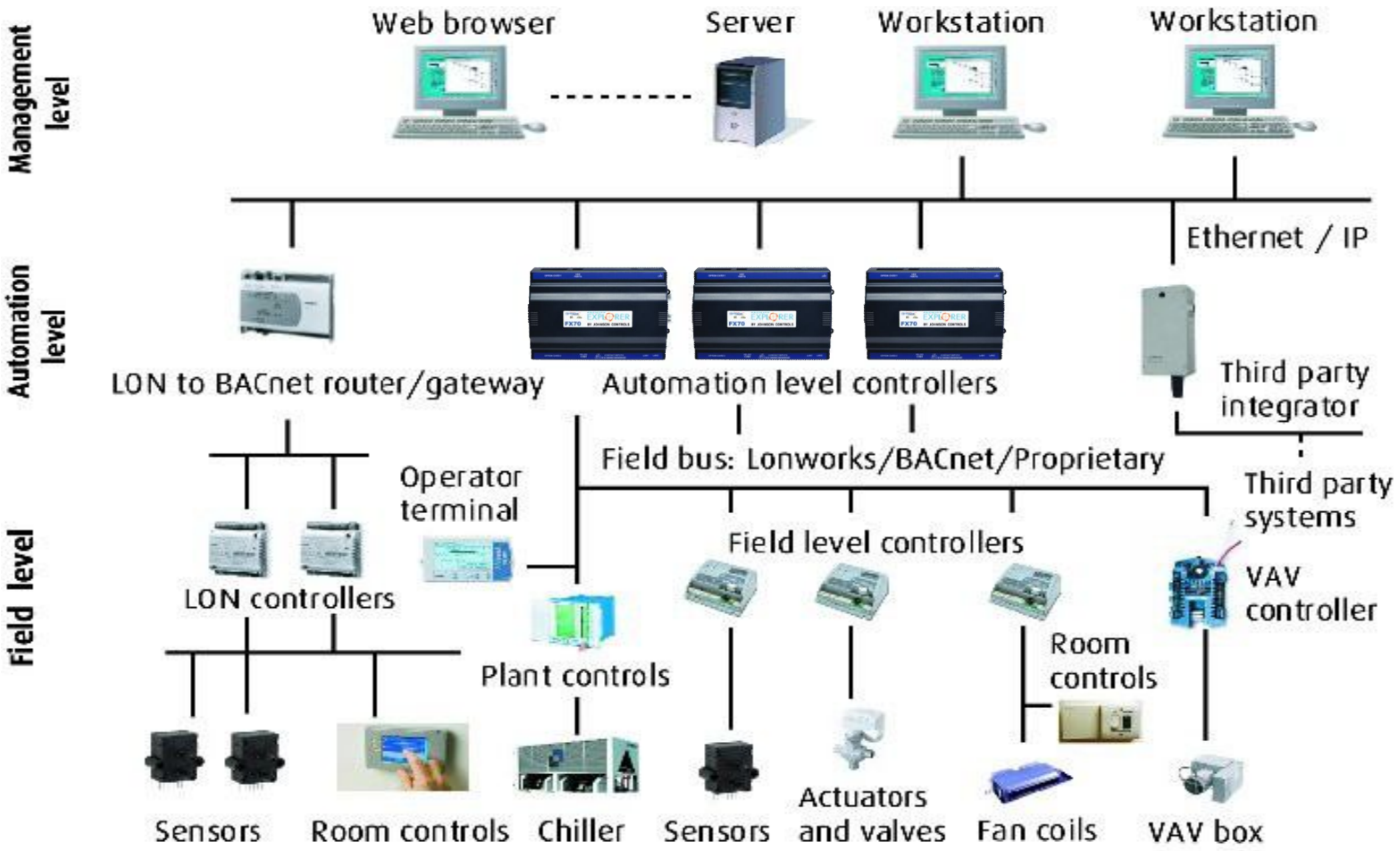
Application Specific

Small Point Counts

Typical System Components – Field Devices

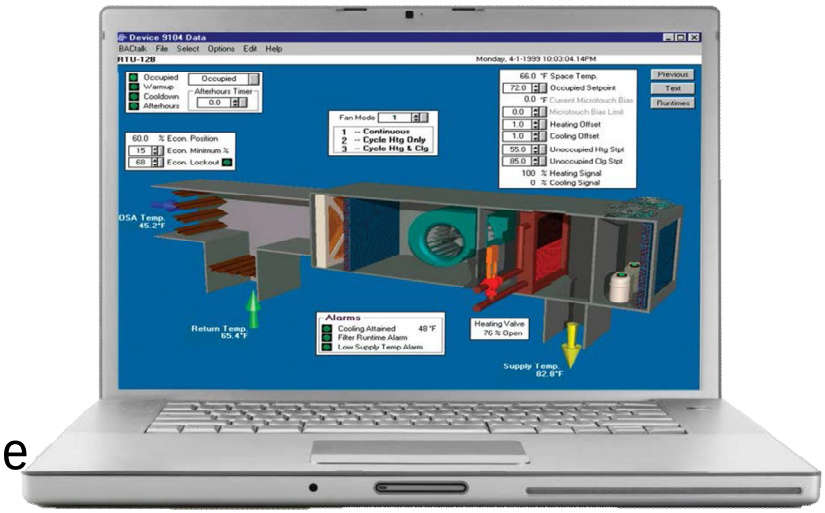


Typical System Components - Networks



Typical User Interface Options

- Can be a basic LCD display through to full Graphic Operator Workstations.
- The Graphic Interface must be intuitive to use and not require an Engineering degree to interpret
- They must provide sufficient level of detail to enable the operator to determine what is happening and what is going to happen next
- Graphics need to provide access to parameters for tuning and seasonal information needs to be built into the system

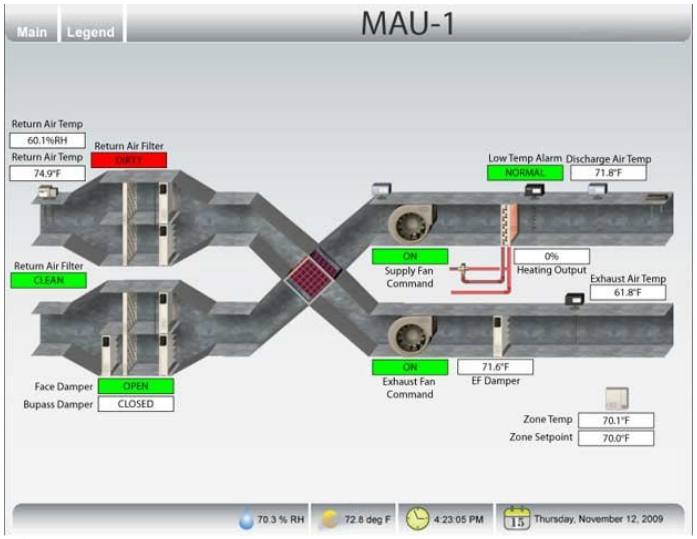


BMS Simple User Interfaces – Built in Display

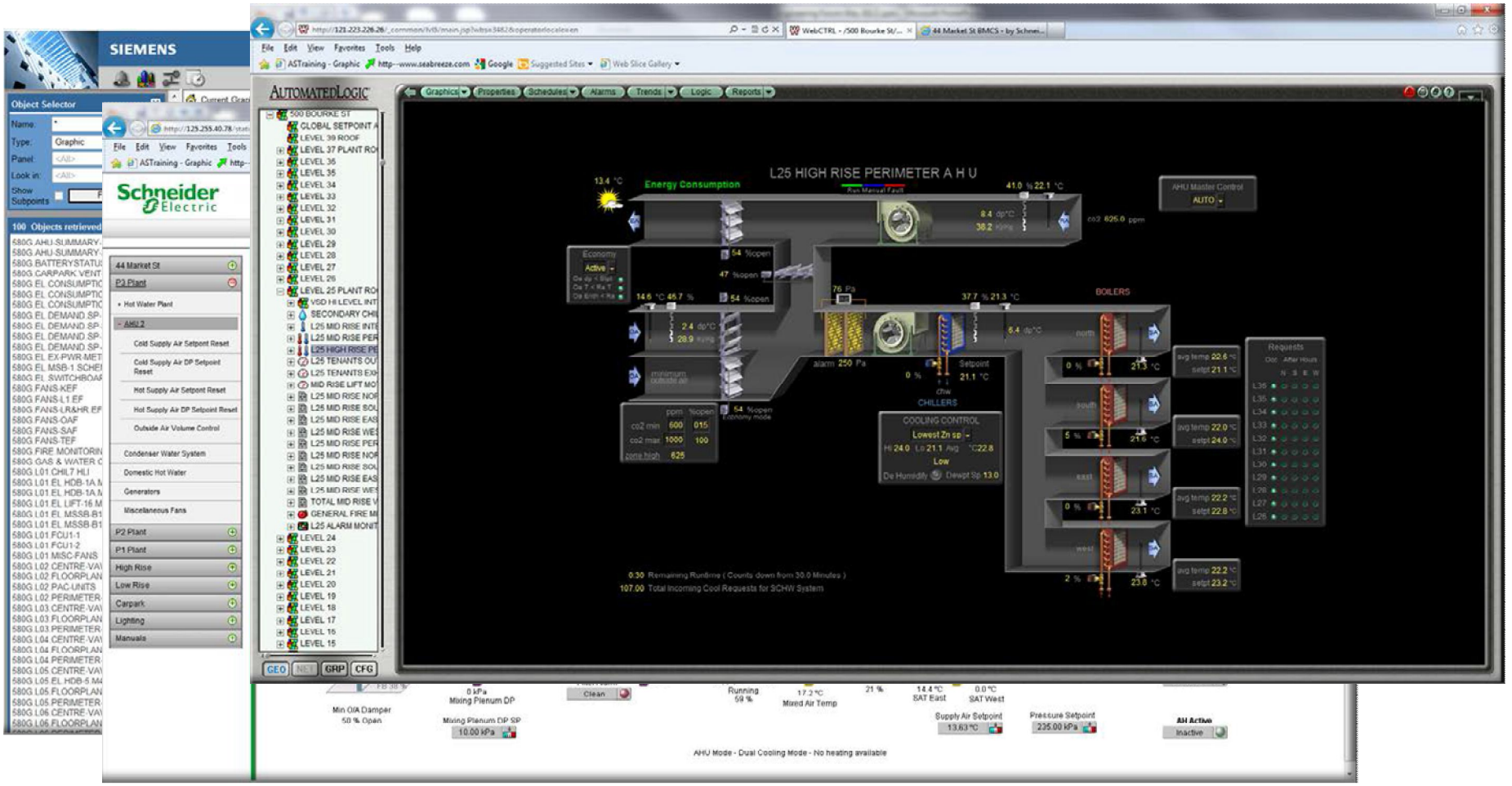
- User defined menus.
- Built into the BMS controller or a remote device
- Password protected
- Monitor and control field points, operating setpoints, time schedules, alarm management, even trend data

BMS Simple User Interfaces – WEB Server

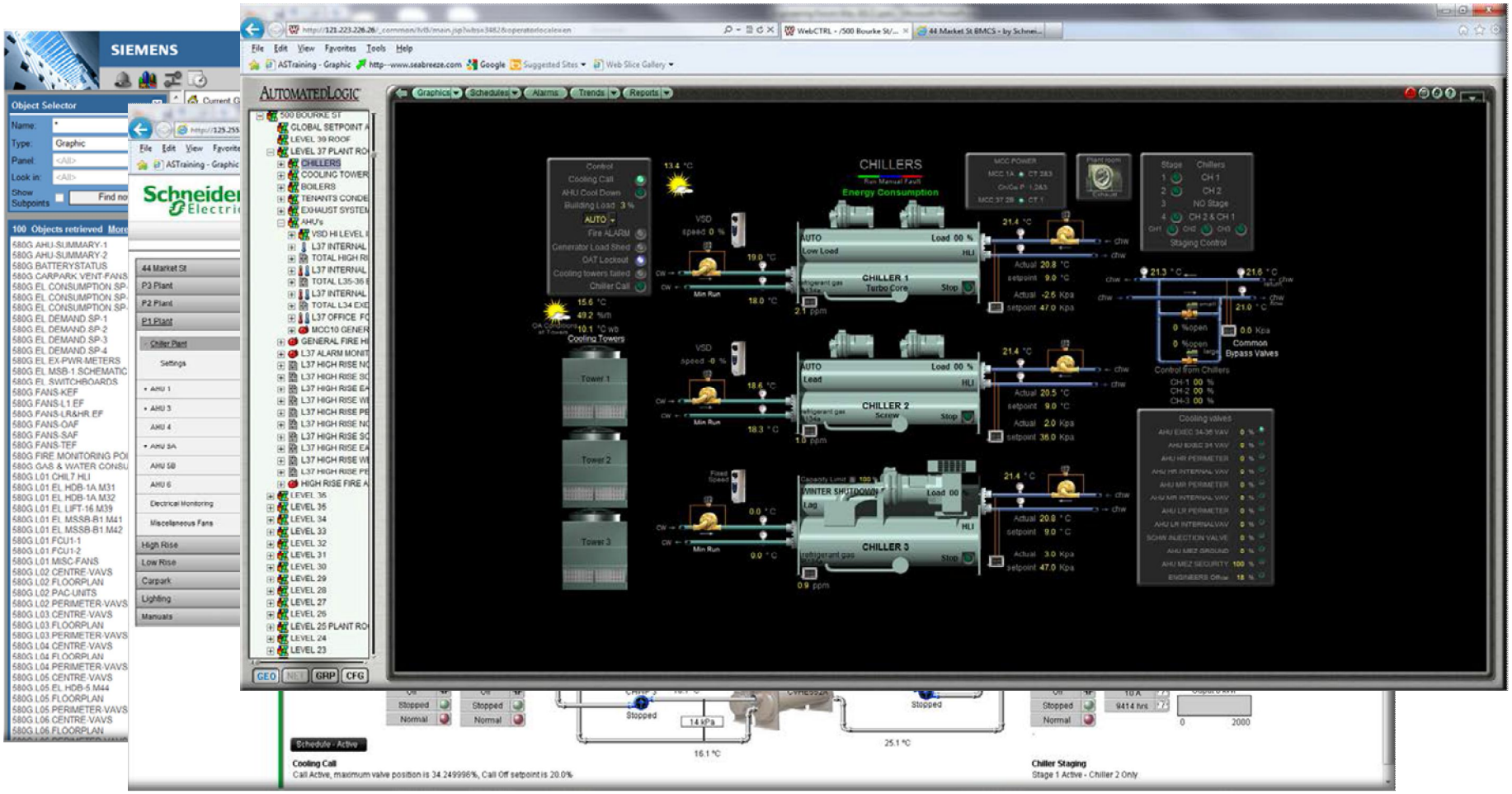
- WEB Server built into a BMS network controller
- User defined menus and graphic pages
- Password protected, multiple access levels
- Monitor and control field points, operating setpoints, time schedules, alarm management, even trend data



BMS Workstation - AHU Graphic Display Sample



BMS Workstation - Chiller Graphic Display Sample



BMS The Basics Explained – Recap…

- BMS systems are "Intelligent" microprocessor based controller networks installed to monitor and control a buildings technical systems and services such as air conditioning, ventilation, lighting and hydraulics.
- Scalable from just one device to thousands of devices
- Link the functionality of individual pieces of building equipment so that they operate as one complete integrated system.
- Provide the building owners and operators with the tools to manage the performance and energy efficiency of their buildings
- Can be integrated into all other building services such as security, access control, CCTV, fire, Lifts and other life and safety systems.

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