UNIT 1: PlantScape Overview

- **Lesson 1: PlantScape Architecture**
- **Lesson 2: Control Module and Sequential Control Module Library**
- **Lesson 3: Control Builder**
- **Lesson 4: Knowledge Builder and On-line Help**
- **Lesson 5: Operator Interface**

Lesson 1. PlantScape Architecture

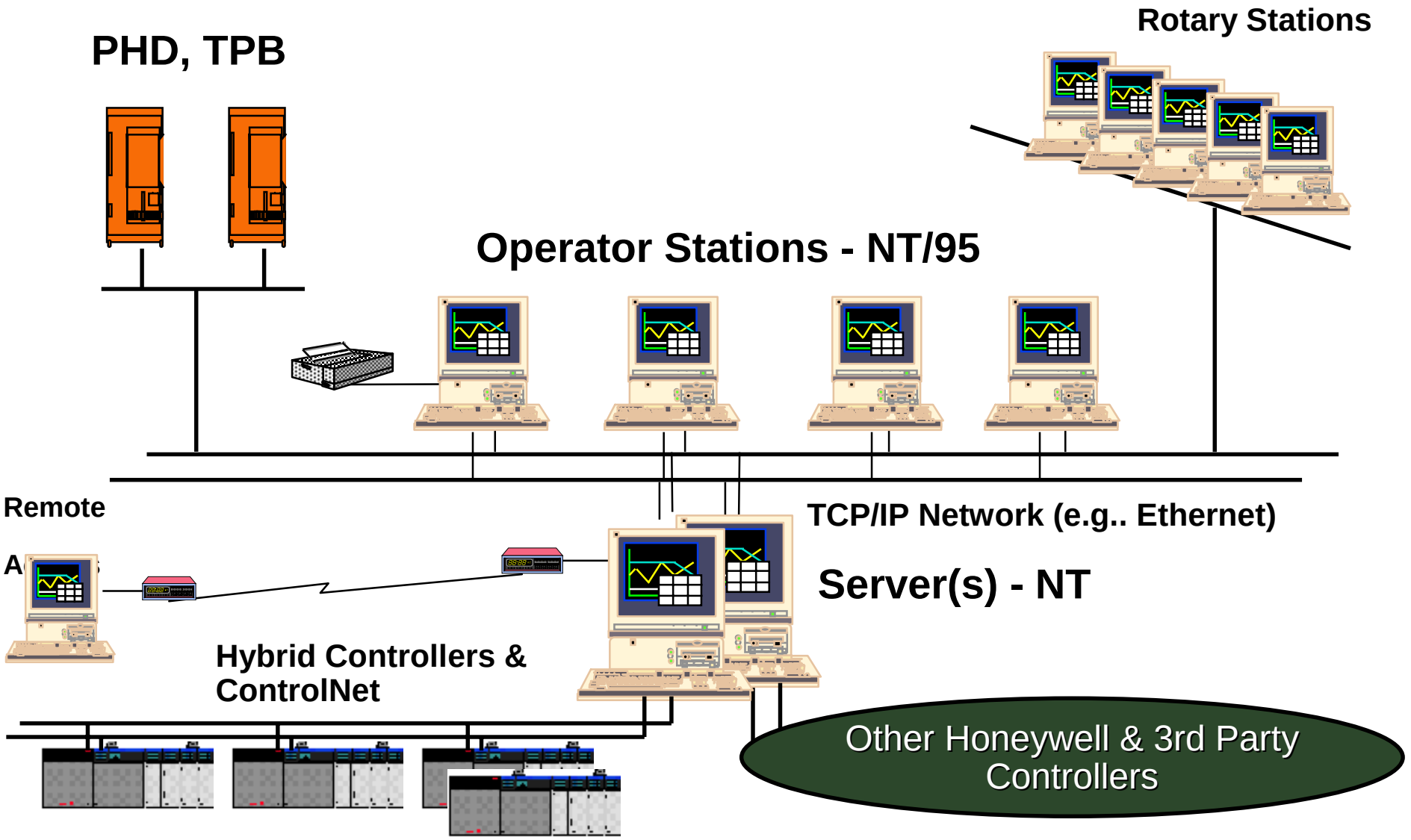
Objectives:

- **Describe function and operation of PlantScape hardware, software and communications**

System Components

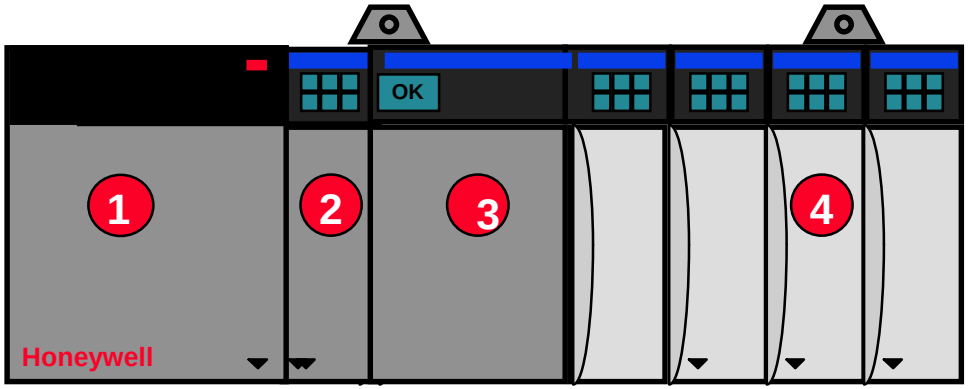
- NT server and workstation
- Hybrid Controller
  - C200 Control Processor
- Control Net communications network
  - Control Net scanner interface
  - PCIC card
- I/O modules
- Knowledge Builder
- Online Help

PlantScape System Architecture



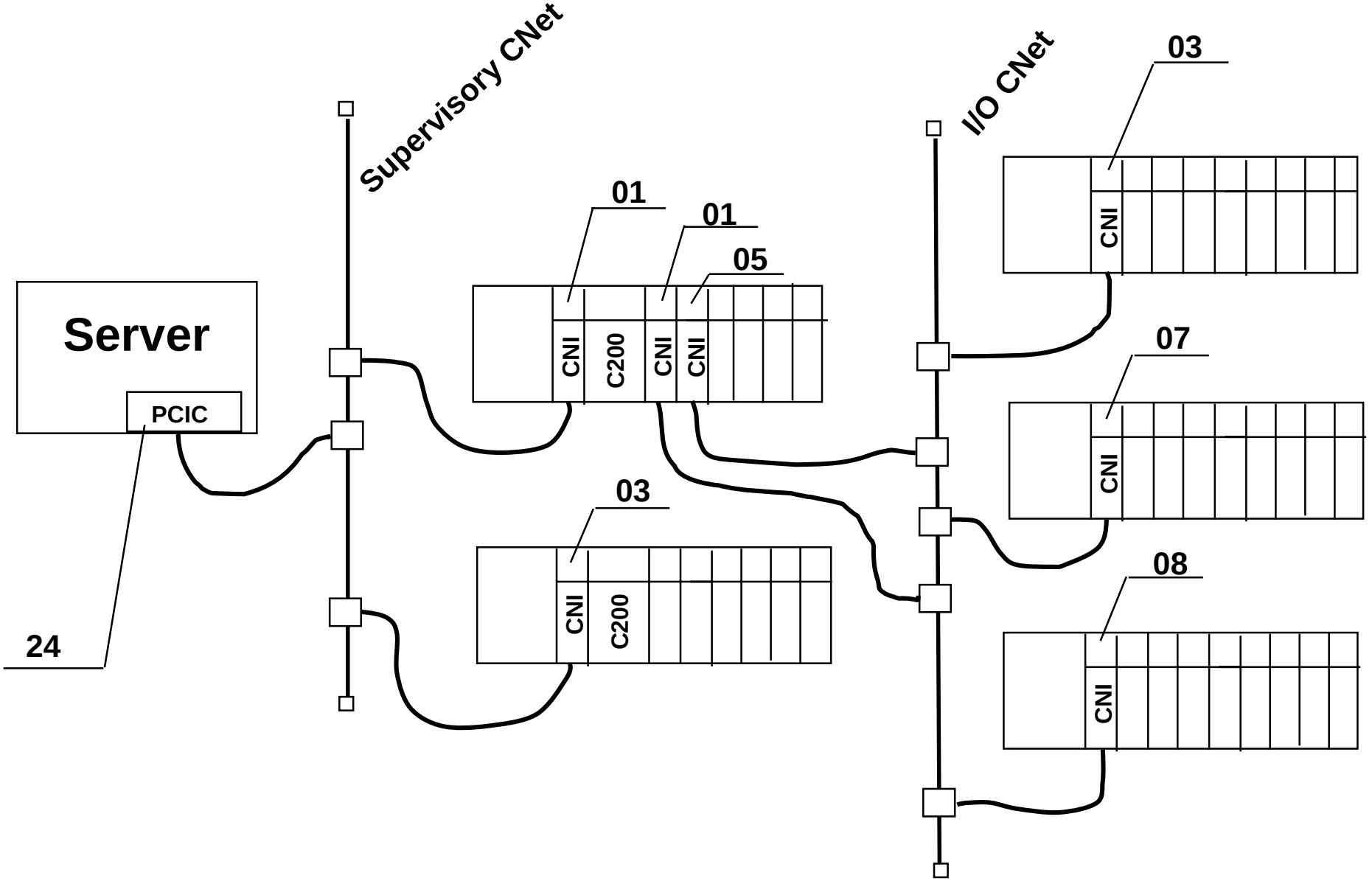
PlantScape Rack

- **Power Supply** 1
- **Communication Interface** 2
  - **supervisory / peer network**
  - **I/O network**
- **Control Processor Modules** 3
  - **Control Processor**, double slot
  - **Logic Processor**, single slot
- **I/O Module** 4



Note: Racks come in various sizes: 4, 7, 10, 13, and 17. Select the size that matches the application.

Address Settings



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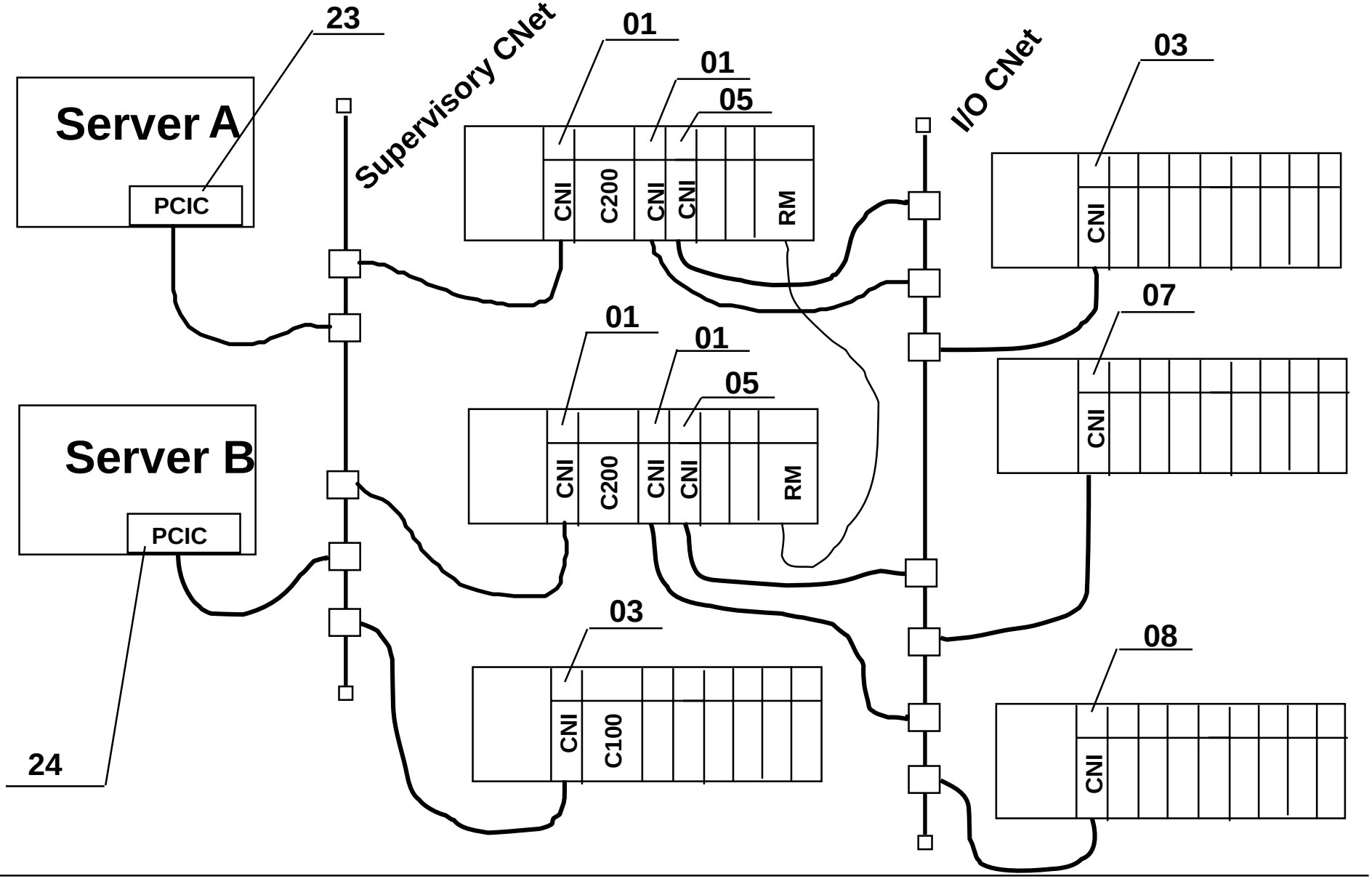
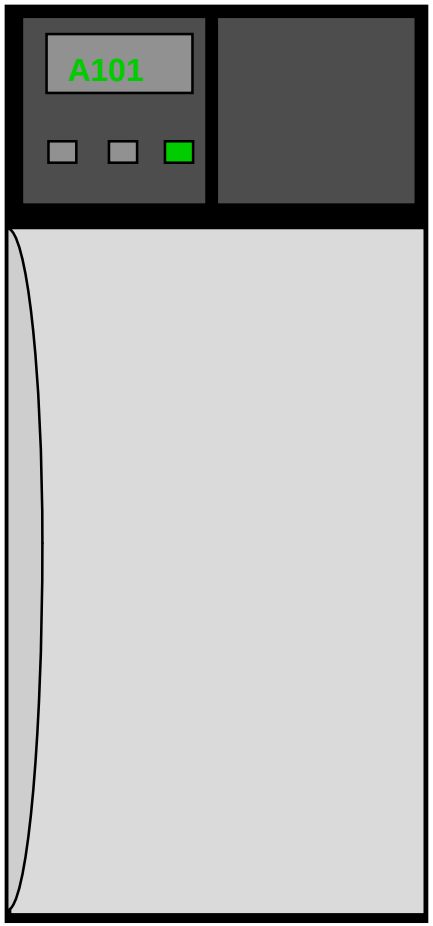


Control Processor Module

- 2 board, double-wide module
- 100 MHz PowerPC microprocessor
- Memory
  - 8 Mbyte RAM with EDAC
  - 4 Mbyte Flash ROM with EDAC (upgrades w/o a new chip)
- Built in lithium battery; Optional rechargeable Battery Extension Module
- Supports up to 64 I/O modules
  - 32 analog I/O modules



Control Performance Summary

- **Max. Control Points (CMs, SCMs, & IOMs) - 1000**
- **Simultaneous Control Capacity**
  - **Function Blocks per CM : 40**
  - **SCM Step\Transition Pairs per SCM: 80**
- **Typical I/O Scan Interval: 25 milliseconds**

Control Processor Module: LED Indicators

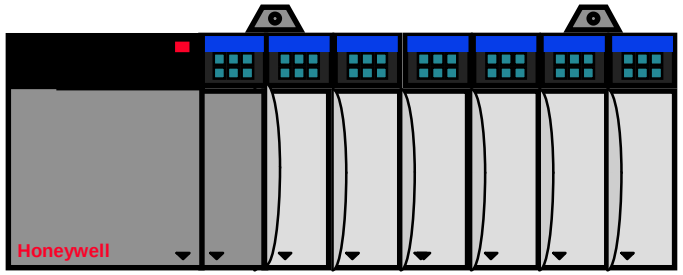
States:

- **RUN - loaded and operating**
- **BKUP - redundant backup controller**
- **IDLE - loaded and not processing**
- **NODB - personality loaded, no configuration**
- **RDY - inactive and ready to be loaded**
- **ALIV - alive; base software not loaded**
- **FAIL - hardware/software failure**

BATtery and OK indicator LEDs

BAT and OK LEDs are green when OK;
red if status is failed.

PlantScape Rack I/O



- I/O modules are configured via ControlBuilder
- Removable Wiring Hood
  - Includes a wire tie slot
  - Protects wiring while removed from module
  - Removable hood to gain termination access
- Choice of Removable Terminal Block (RTB) style
  - 20 position RTB (8 point or less I/O modules)
  - 36 position RTB (16 point I/O modules)
- Termination Connector
  - Supports “Removal & Insertion under Power” for field termination *and* backplane connectors
  - Door opens to provide a handle for connector removal
- 5” x 5” I/O modules

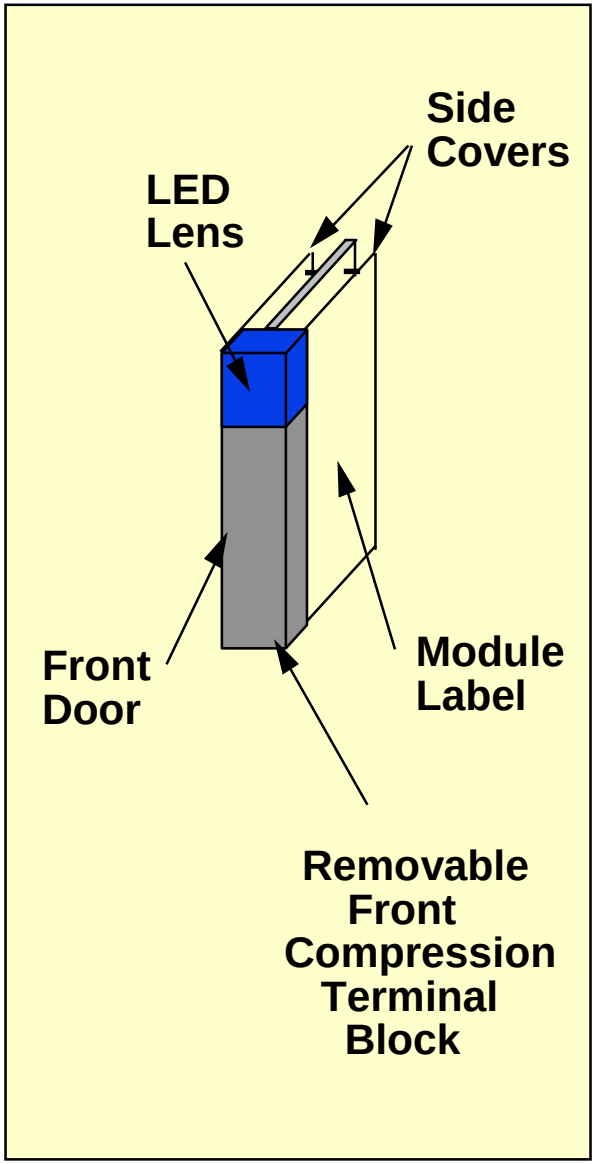
Rack I/O LED Indicators

LED	Display	Definition
OK	**steady green**	**normal operations**
OK	**flashing green**	**passed internal diagnostics, but not operational**
OK	**flashing red**	**communications time-out**
OK	**steady red**	**replace module**
I/O State	**yellow**	**active I/O (point active)**
I/O Fault	**red**	**point failed**
Cal	**flashing green**	**calibration mode**

PlantScape Rack I/O

- Analog
- Isolated discrete relay
- AC Digital I\O modules
- DC Digital I\O modules
- Serial Interface module

See *Control Specifications Reference* for Detailed information on available I/O modules



PlantScape Communication Model

- **Report-by-Exception**
  - Information is published according to a deterministic clock cycle only if it has changed
  - The server update cycle is 500 ms with no deadband, only when an item is part of the active subscription list
  - Only necessary information is sent to the server
  - Alarms are reported when they occur
    - includes events and messages

PlantScape: ControlNet

- supports Supervisory/Peer and I/O network communications

- Control Net Interface module

  - links Controller with a ControlNet Process Control network

- 5 Mb / sec data throughput

- RG6 coax cable with BNC connectors in a trunk and drop, bus topology

- RSLINX communications package

PlantScape Server

- **Server capability**
  - 550 MHz Pentium III; 128 Mb memory (Std Performance Server)
  - 17” or 21” monitor display
  - 4 MB video memory, 512 Cache
  - 4.3 GB hard drive
  - NT 4.0 operating system
  - 20 to 20,000 points
  - PlantScape Global Data Infrastructure
  - Distributed Server Architecture (optional)
  - Redundant (optional)

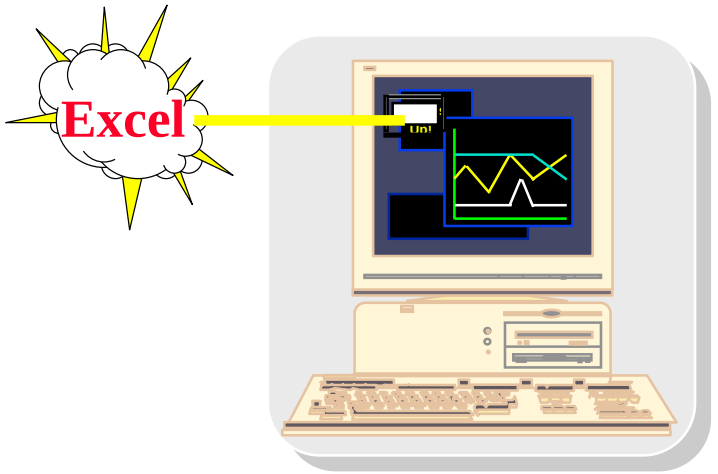
- **One server supports**
  - 20 station clients
    - Local
    - Static
    - Rotary
    - Dial-in

Server Capabilities

- dynamic data caching
- notifications management
- engineering tools and interface
- history collection
- networking
- report processing

PlantScape Client Station

- **Client capability**
  - **300Mhz Pentium II with 32 Mb (95); 64Mb (NT)**
  - **Can run directly on the server**
  - **NT 4.0; Win ‘95 Operating Systems**
  - **HMI Functions**
  - **ControlBuilder functions (NT only)**



Knowledge Builder

- accomplishment based online documentation
- powerful search capabilities
- 3 basic types of documents:
  - Guide (how to's)
  - Reference (functionality and descriptions)
  - Theory (background information)
- ease of use with:
  - global TOC and index
  - dictionary of PlantScape acronyms and terms
  - organization by job function / accomplishment
  - organization by type of document
  - organization by Function Block

Online Help

- context sensitive help

- direct links to Knowledge Builder (KB)
  - via specific topics
  - to front end of KB