

Elizabethtown College
Scholarship Day 09'

Automated Shower Preheating System Using a PLC



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The Idea

- ◎ Themed around Wall-E
 - > PLC's donated by Phoenix Contact
- ◎ Entire Design Process Used
 - > 45 designs narrowed down
 - > 3 final
 - > Approved by Phoenix Contact in person
- ◎ Final presentations

Agenda

- Team Introduction
- Initial Ideas
- Designs Simulated
- Schematic
- Alt. Control idea
- Demonstration



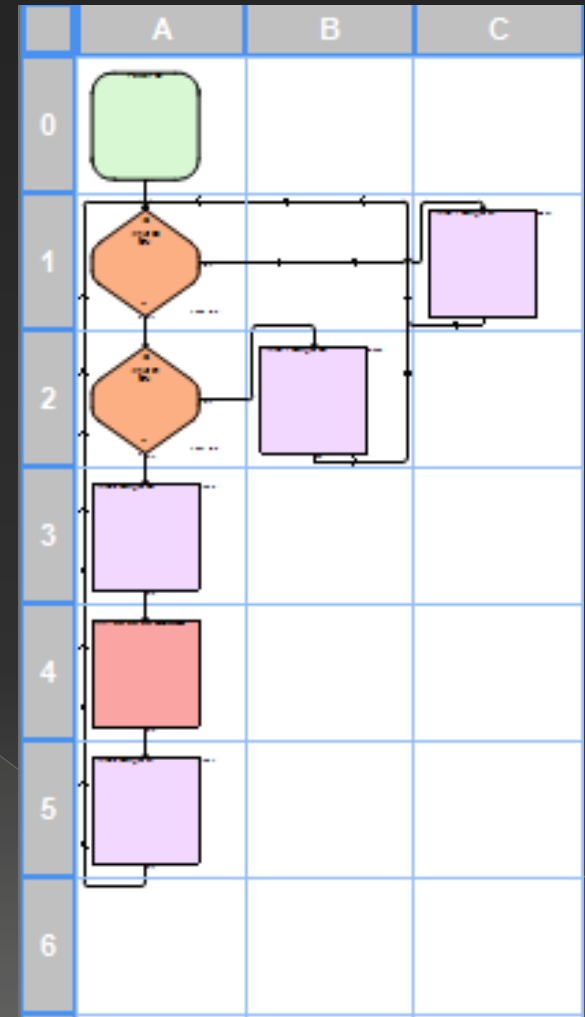
Initial Designs

- Lock Activated Lights
- Humidity Fan
- Wood Cutter
- CNC Milling
- Moving Headlights
- Pump/Outrigger control
- *Shower Warmer*
- Christmas Light Control
- Security Lockdown
- Landscape watering
- Motion Sensing Light Control
- Alarm Clock light Control
- Universal Controller
- Firehouse call alert
- Wheelchair Remote



Designs Simulated

- Locked Activated Lights
 - > Door lock → house lights
- Alarm Clock Wake Up
 - > Turns on bedroom lights etc.
- Shower Warmer
 - > Heated tank holds hot H₂O



SCHEMATIC OF CHOSEN DESIGN

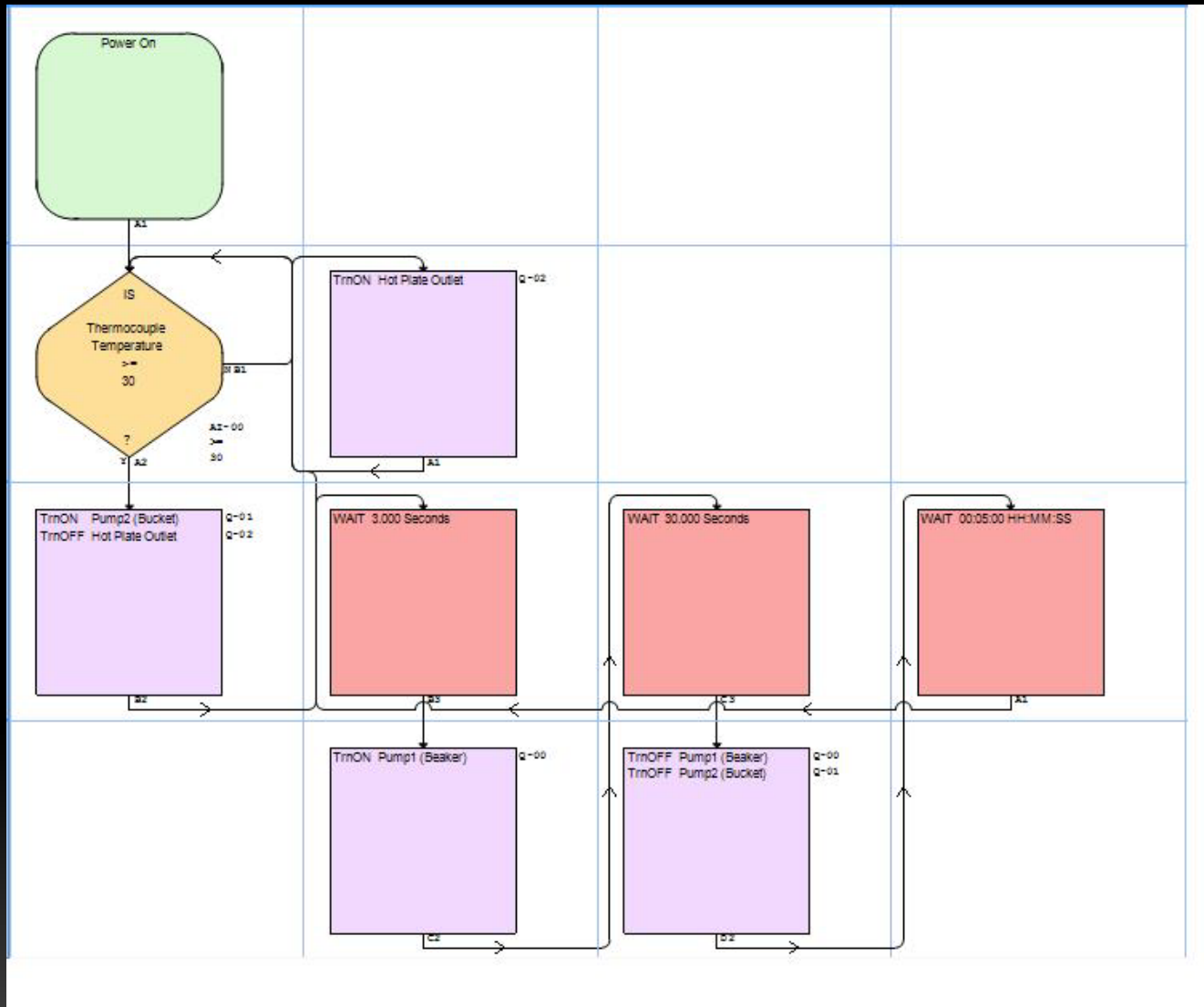
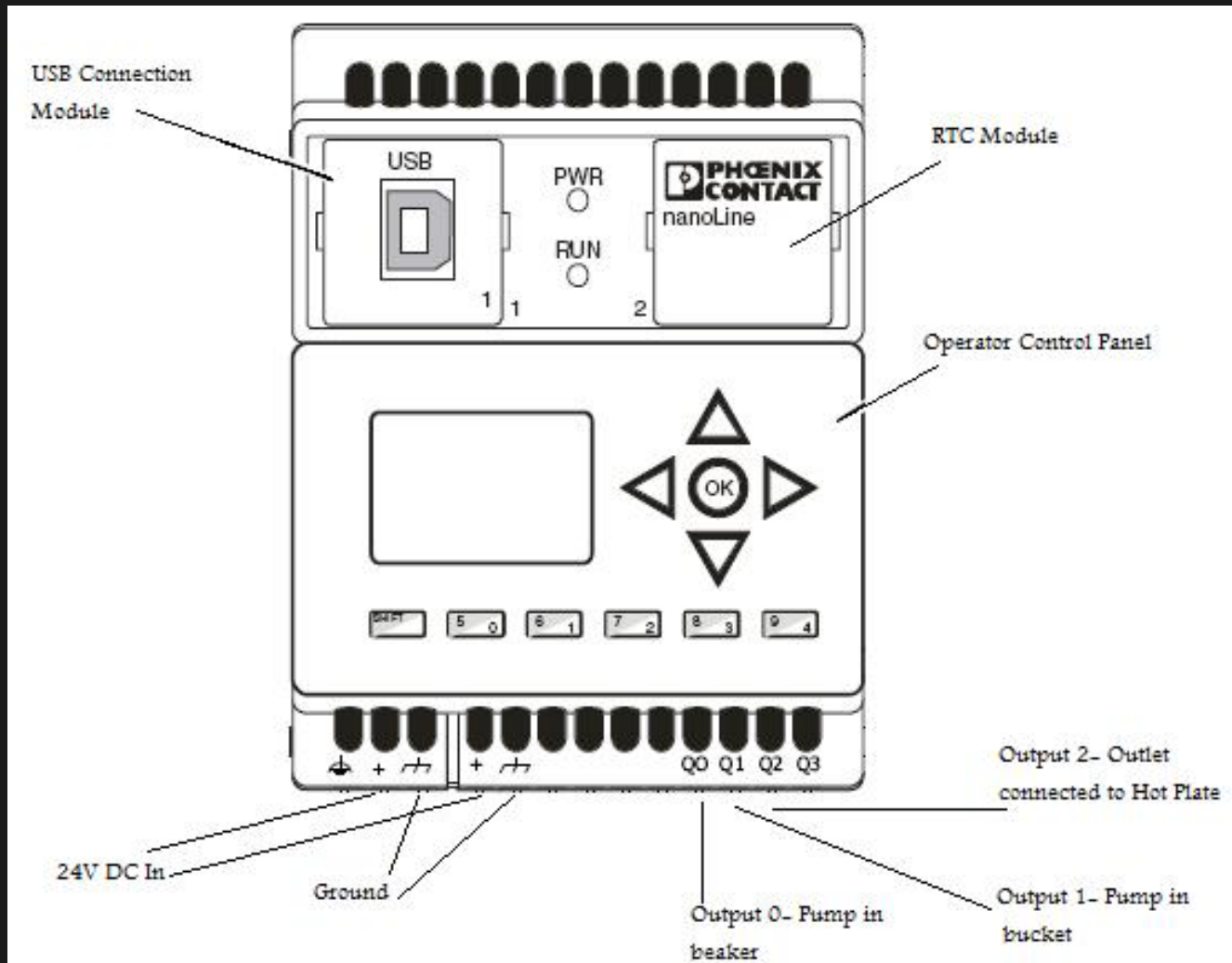
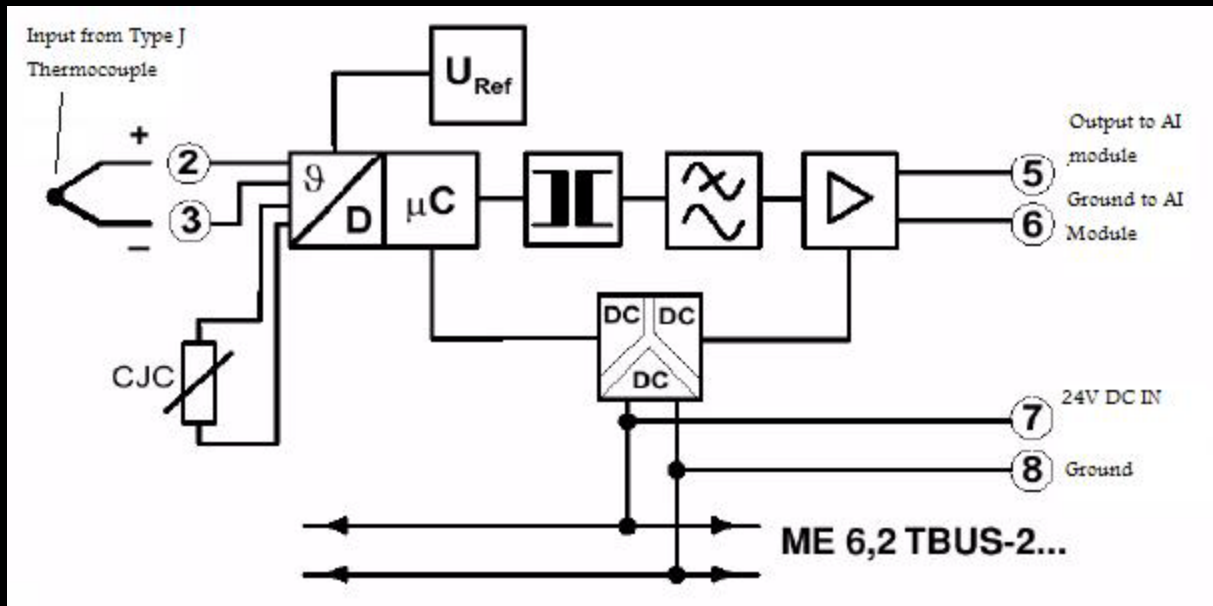


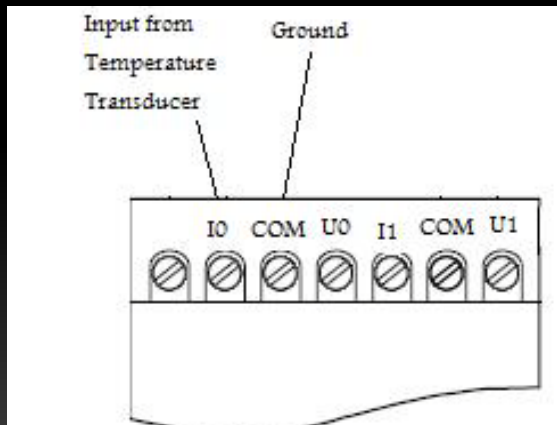
Diagram of PLC + relays available in report



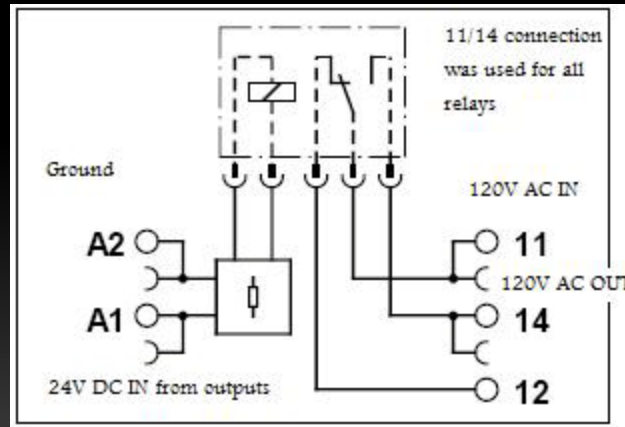
Detailed Schematic



Temperature Transducer



Analog Input



Relay Configuration

Detailed Schematic 2

Alternative Control Scheme

- ◉ Labview
 - > Could be used to simulate
 - > Data acquisition
- ◉ Microcontroller

Thank You
For Your Attention
Enjoy the Demo

