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PART100 - Electrical Design with PTC Creo Schematics: From Concept to Completion

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Takeaways

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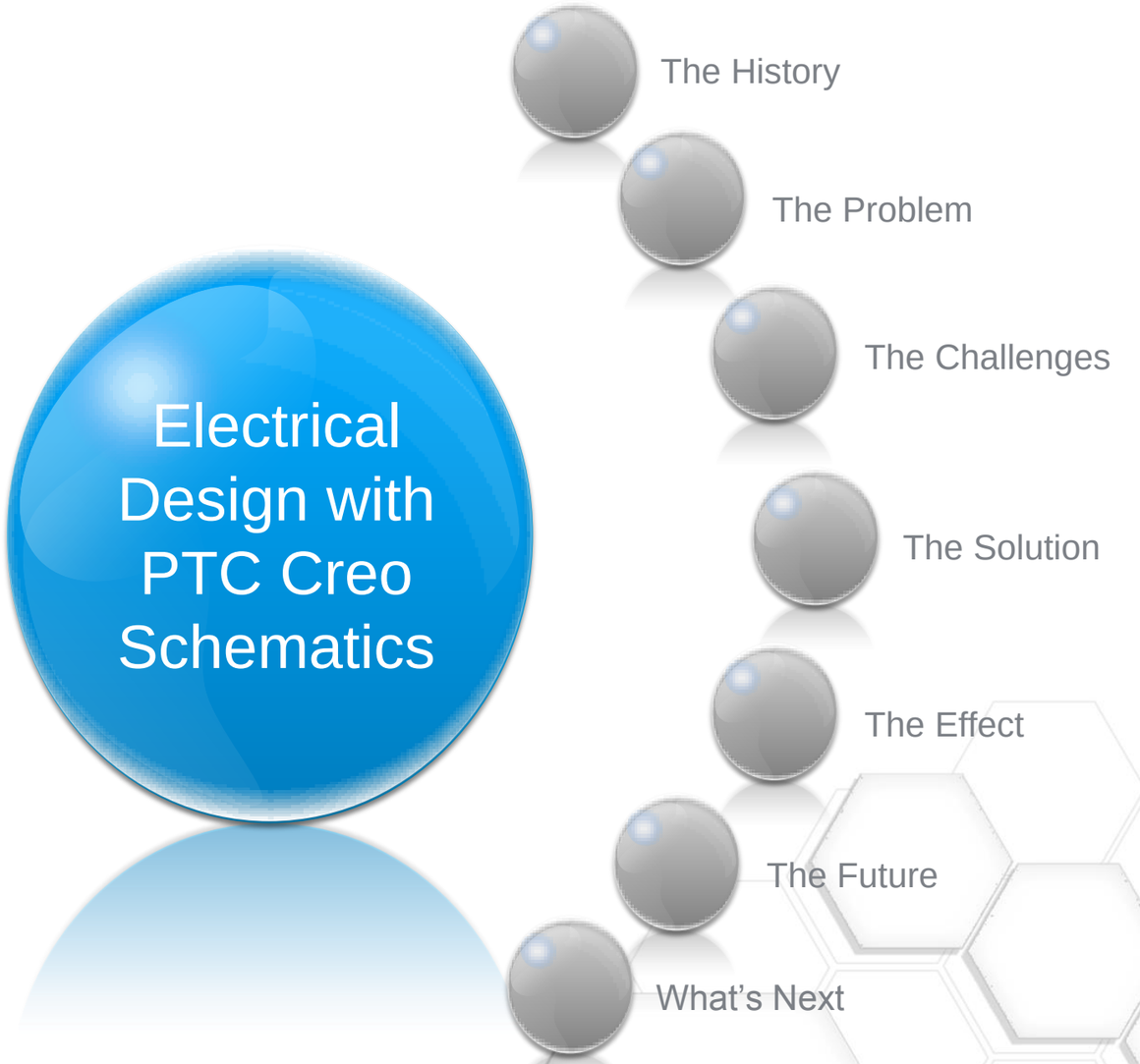
1. Electrical design can evolve over the course of the development of a product

2. Circuit and Wiring Diagrams do not need to be explicitly separate documents

3. The Electrical design process can be just as flexible and iterative as any other process

How Does Your Electrical Design Evolve?

Agenda


Electrical Design with PTC Creo Schematics
The History
The Problem
The Challenges
The Solution
The Effect
The Future
What's Next

Company History

- Engineering Consultancy, Established 2004
- UK Office: Glasgow, Scotland
- US Office: Richmond, Virginia
- Specialists in Routed Systems Design
  - Project, Process, Product

Relationship with PTC

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Silver

PartnerAdvantage

The History

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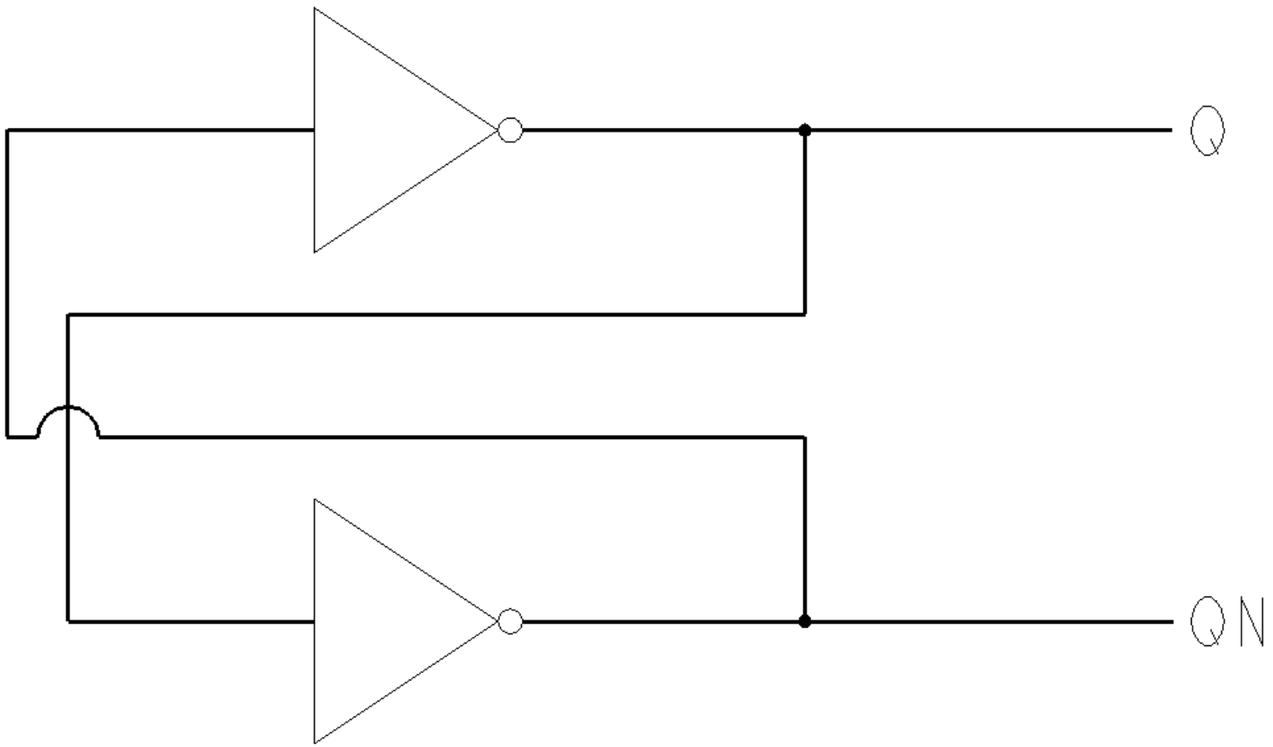
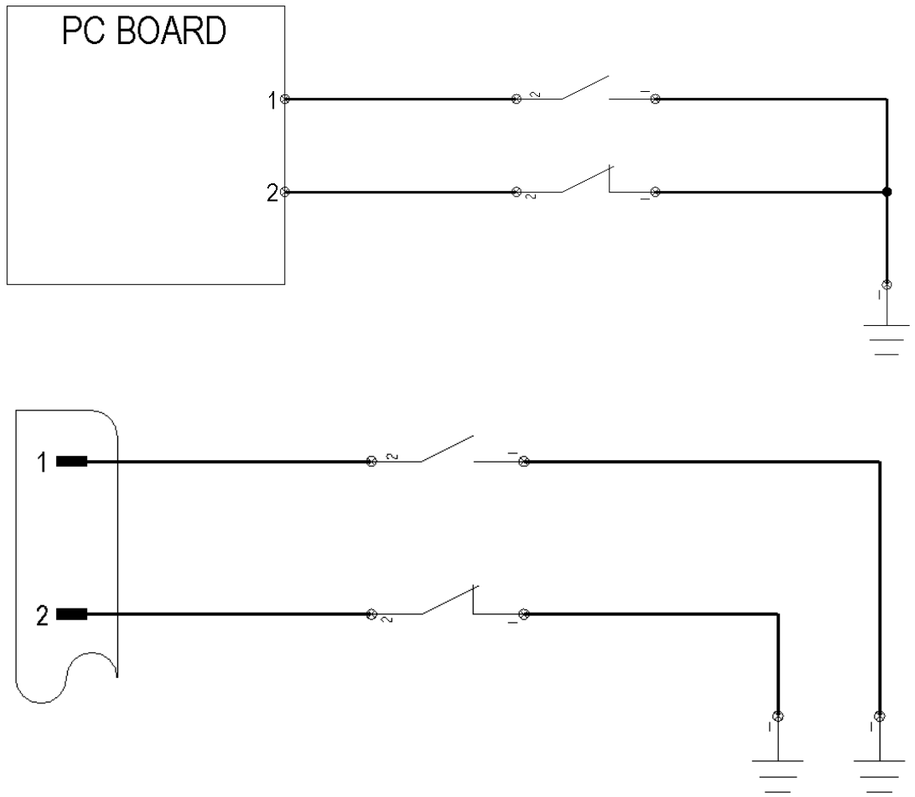
That's Just The Way It Is



- Sequential Design
- Electrical Engineers create Circuit Diagram
- No detailed design at this stage
- Drafter generates Wiring Diagram
- Detail added to Wiring Diagram
- Work ends up being done twice

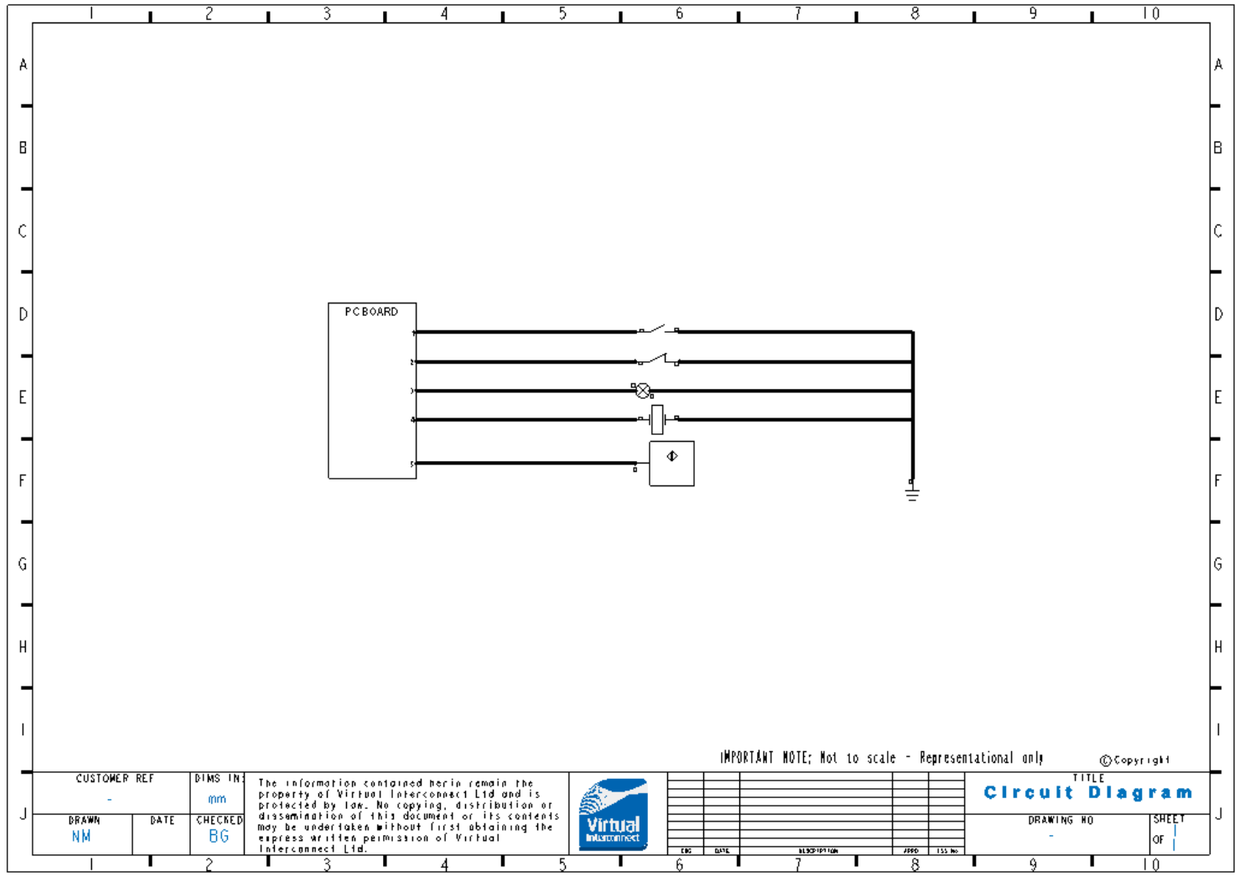
The Problem

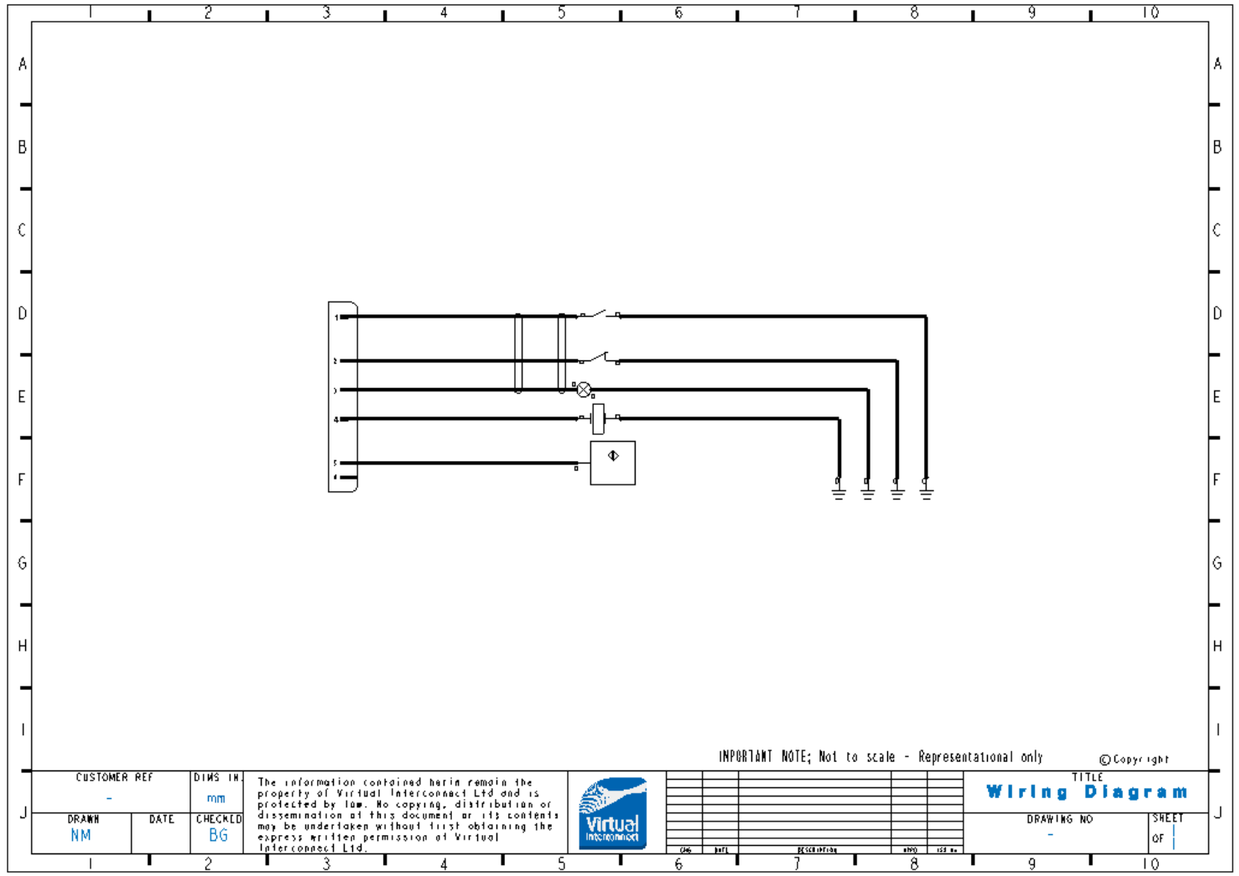
Hey Hey What Can I Do



- No need for two different diagrams
- How can the design evolve without redrawing
- Component selection at detailed design stage
- Multi-Sheet Design
- Multi-Engineer Process
- Handling Change
- Link to PTC Creo Cabling

Circuit & Wiring Diagram Design using Current Process





The Challenges

- Why can’t we do it the way we always have?
- It would be nice if...
- Trying to account for every possibility
- When things start to change
- Maintaining the link to PTC Creo Cabling
- Handling legacy data

The Solution

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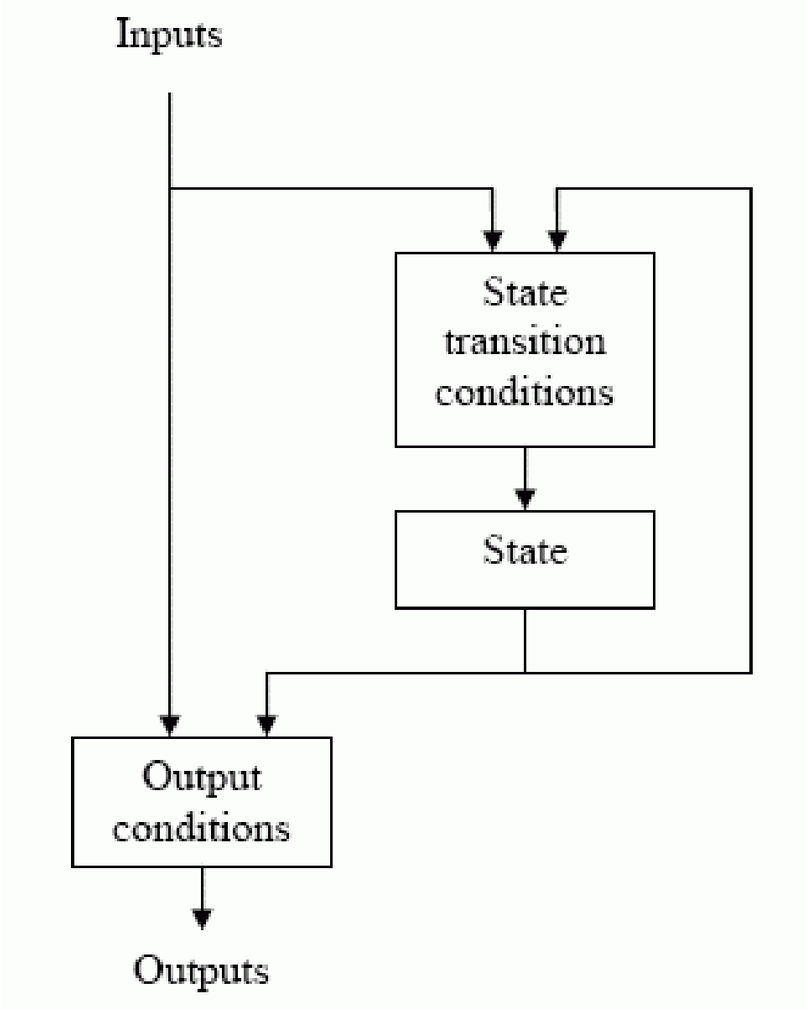
IEC 60617 to Facilitate Evolutionary Design

- Library of symbols based on IEC 60617 standard
- Functional Design
- Circuit Diagram
- Wiring Type Diagram
- All generated from library
- Each developing into the next

The Solution

Functional Design



- State Machine
- Inputs/Outputs defined at high level early in the process
- Operation to progress from input to output
- IEC 60617 standard symbols used for definition
- Used as basis for generating the Circuit Diagram

The Solution

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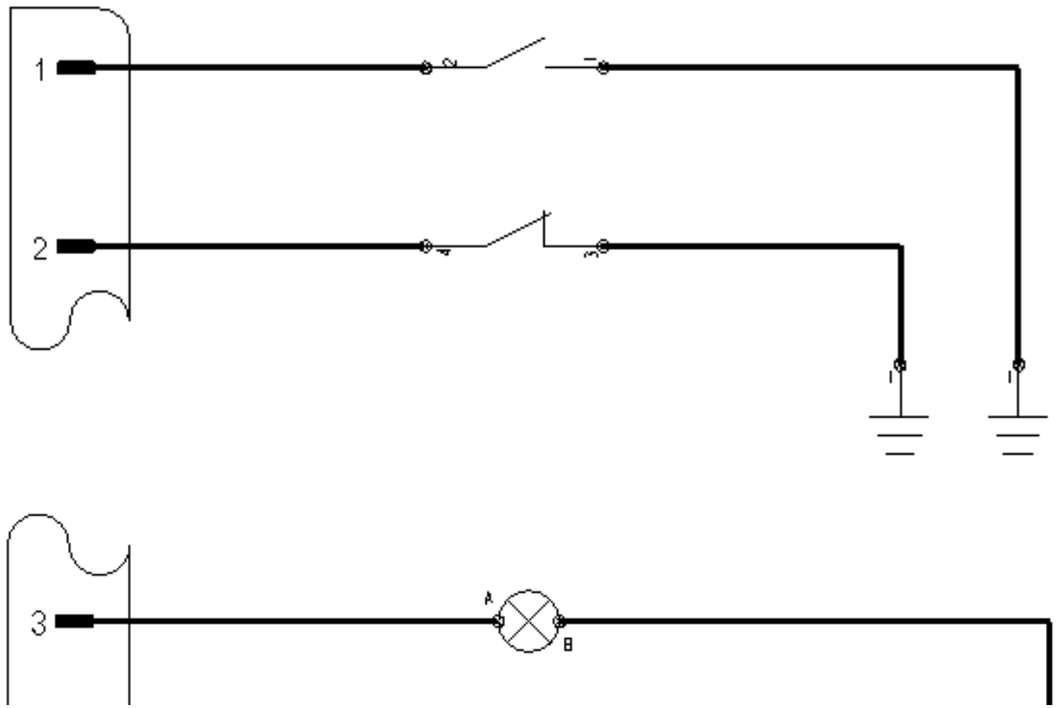
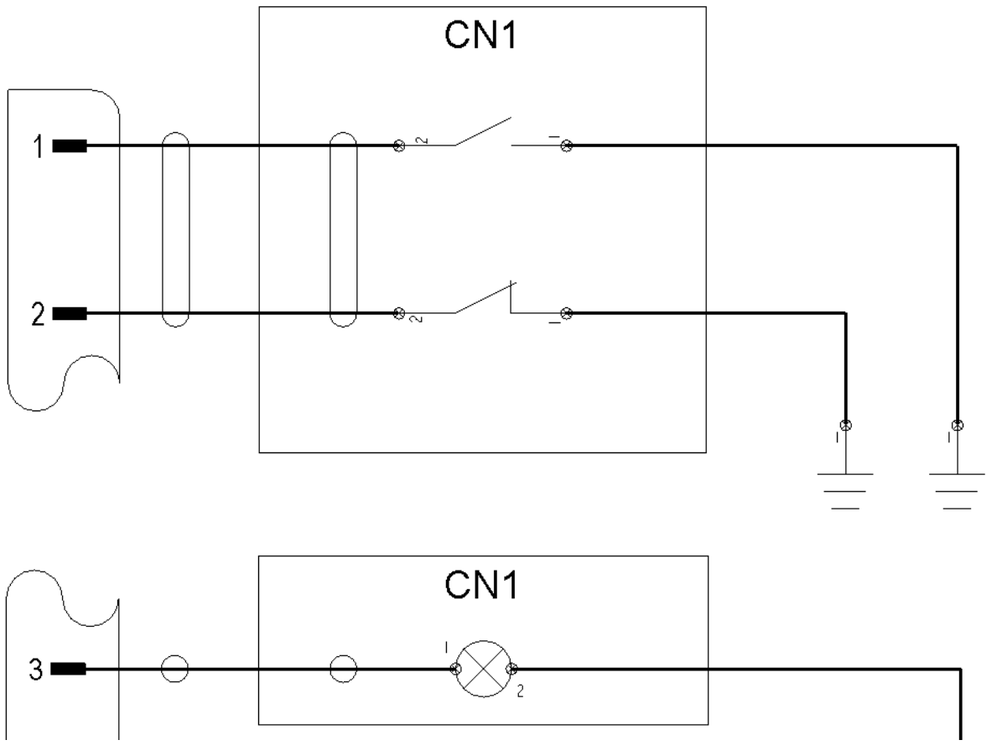
Circuit Design



- Functional elements develop into Circuit design
- Electrical Engineer creates Circuit Diagram using fundamental IEC 60617 symbols
- Early stage of design process so little detail is defined
- Passes to Routed Systems Engineer for detailed design

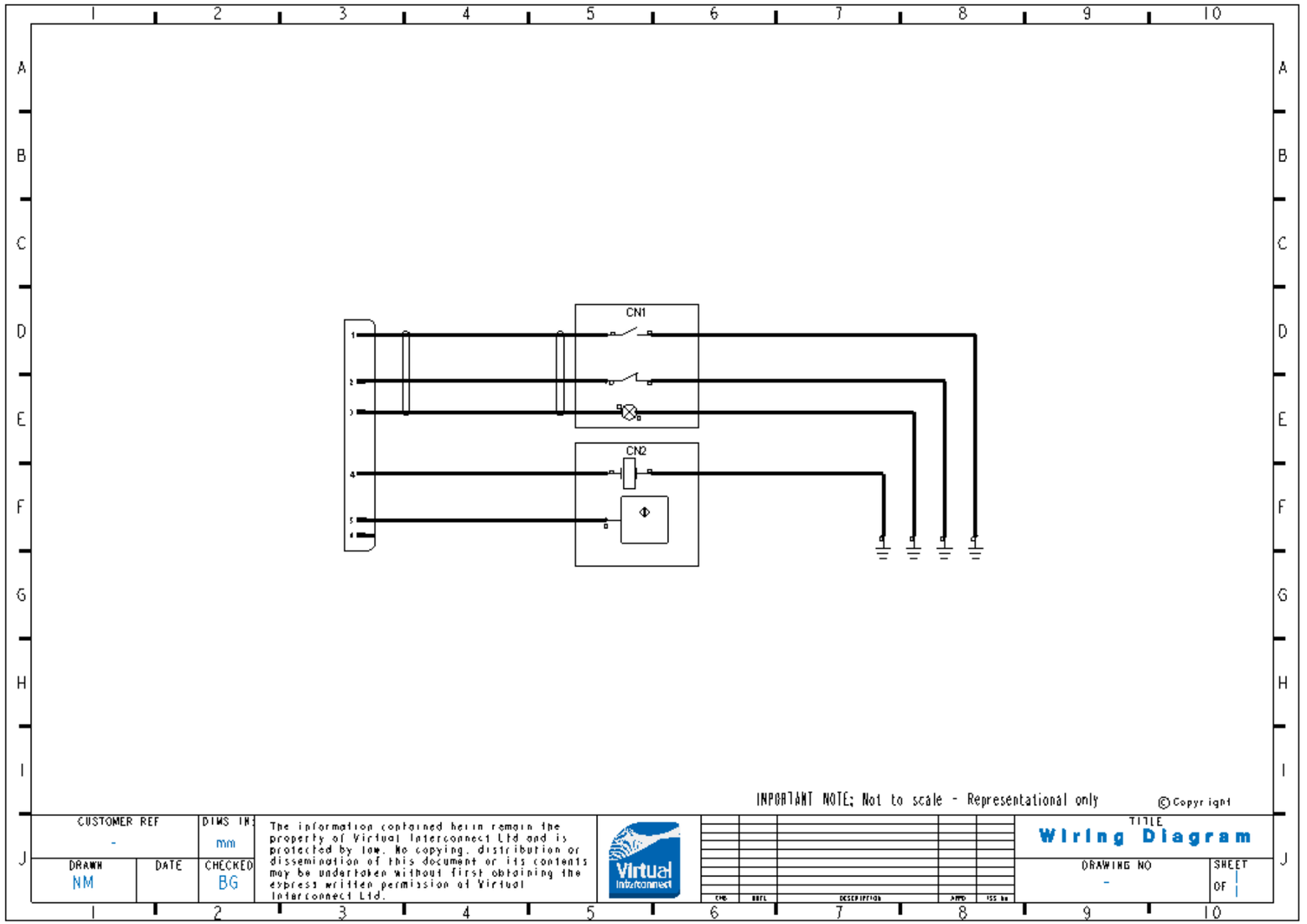
The Solution

Detailed Design

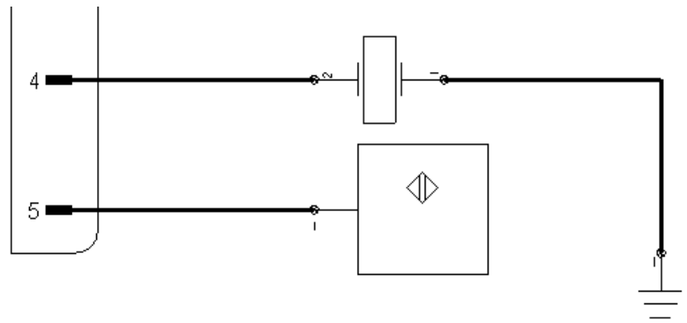


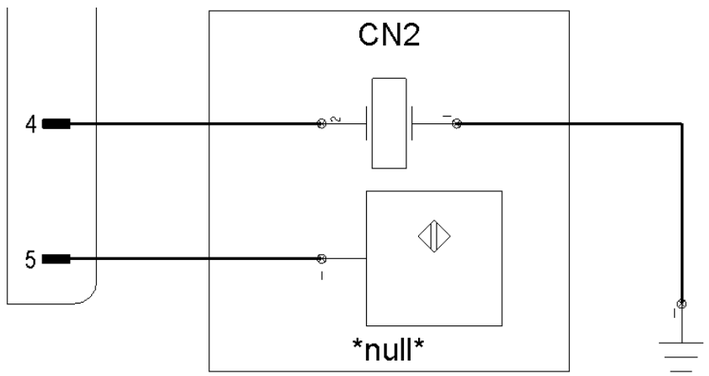
- IEC 60617 symbols are grouped together to form connectors/components
- Dataset can be assigned to these groups to represent components/connectors
- Create Cable to generate cables from wires
- Reassign shape to group from multi-sheets
- Reorder logical members where pin ordering is incorrect

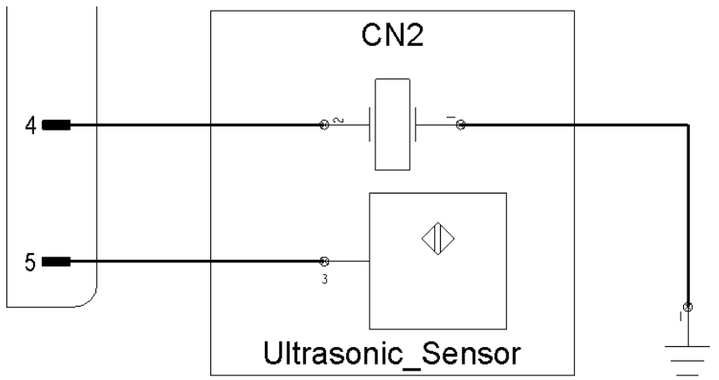
Evolving the Circuit Design into a Wiring Diagram



The Effect

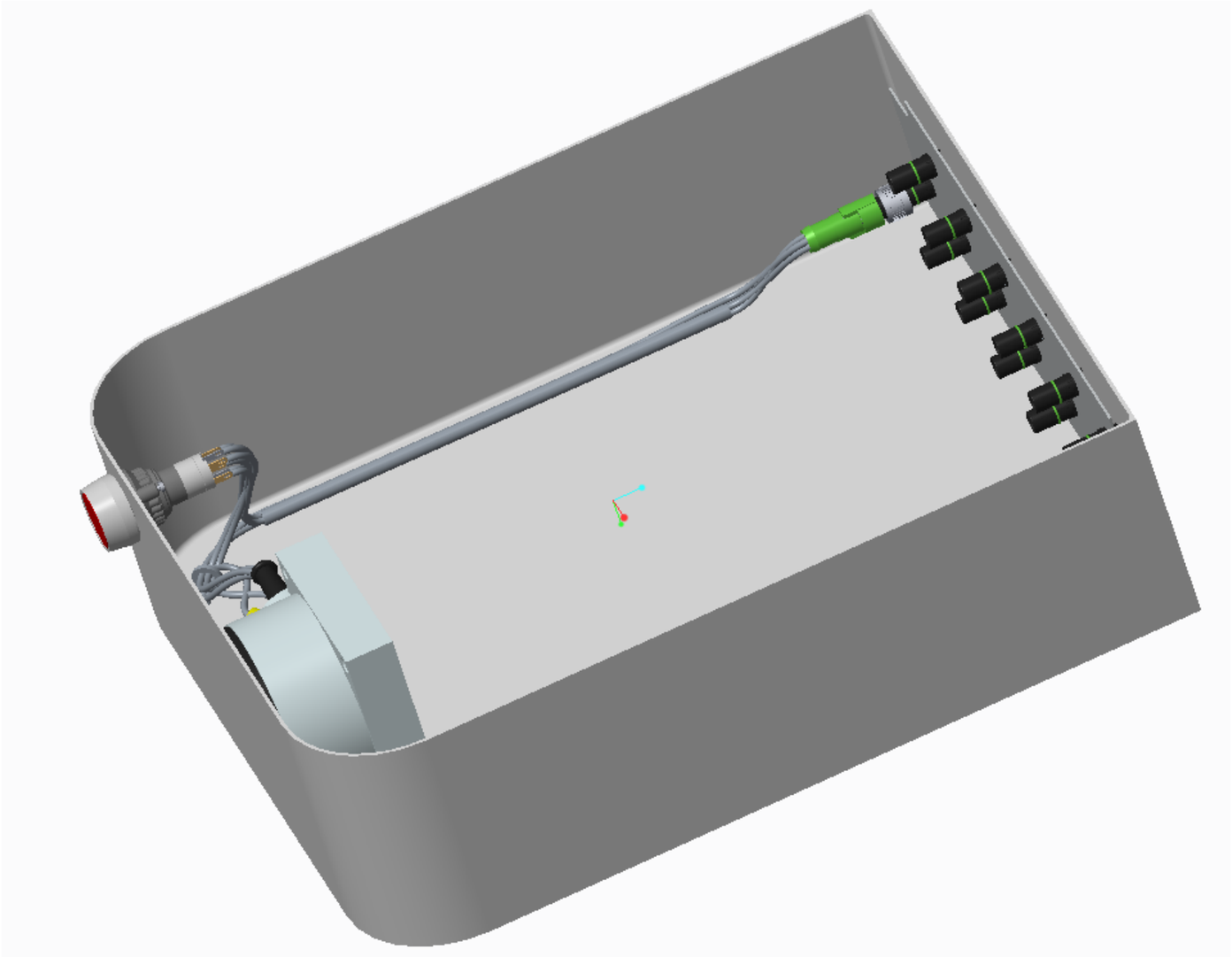






- Can evolve through Circuit to Wiring Diagram
- Generation time is reduced
- Single design to manage
- Flexible Process
- Drawn like a Circuit Diagram but used to drive Creo Cabling

Using the Design to Drive PTC Creo Cabling



The Future

What's Next?

CC Image courtesy of Buck on Flickr

- Building System Complexity
- Process Improvement
- Customisation

What's Next

Why Do I Care?

- What is my process Just now?
- How does your design evolve?
- Do I need to do it this way?
- What do I need from my design?
- What could I change?
- Could I evolve my design throughout the process?

Questions?

How Could Your Electrical Design Evolve?

- Your feedback is valuable
- Don’t miss out on the chance to provide your feedback
- Gain a chance to win an instant prize!
- Complete your session evaluation now

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