

## Stopping the DDC / Packaged Controls Train Wreck

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Overview: What are the best practices to integrate systems and get them to perform at the end of the project?

### 1:00 - 1:45: Design Phase

- Sequences of operations – Do the sequences translate to controls operation?
- Packaged Controls vs. DDC vs. Cost - What is the right fit for the owner?
- What is to be integrated? – For control or monitoring?
  - Boilers, Chillers, Packaged AHU's, Meters, Lighting Control, UPS, Security
  - Pros / Cons of each
- Meters – Where does the information go?
- Analytics / Dashboards
- Now that we know what it looks like, what is needed for the specs?
  - Comm Protocol
  - UL Ratings
- Design Reviews – Do specs and drawings match up?
- Sensor locations located on drawings
- Types of Sensors Used?
  - Accuracy, tolerance, petes plugs, test accuracy

### 1:50 - 2:30: Submittal Phase

- Controls submittals / integrated equipment
- What should the Commissioning Authority look for?
- Integrated systems – Is the right widget included to communicate to the specific system? – is the commissioning agent the only one looking for them?
- Do the submitted components match the specs? Will they work?
- Integration – Hundreds of points, what's important? To whom? Graphics? Tech Screen?
- Who documents change to the submittals / specs? Designers? Contractors? in asbuilts?
- How does this change if the Commissioning Authority is introduced in this phase?

### 2:35 - 3:10: Testing / Acceptance

- Start-up time of the packaged controls
- Bas Point to point, Check – What about Packaged point to point?
- Controlling over networks? Monitoring only?
- Hard wire vs, integration control?
- How to overcome late Commissioning involvement?
- How to engage the Owner / O&M Staff?
- Meter commissioning / Drift?

### 3:15 - 3:30: Wrap up

- What do commissioning authorities need to do to stop the train wreck?
- How do we bring that message to the Owner?
- Future Commissioning Tech Talks?