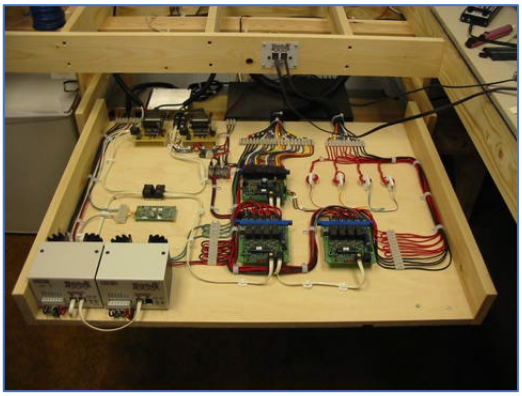
DCC and Wiring

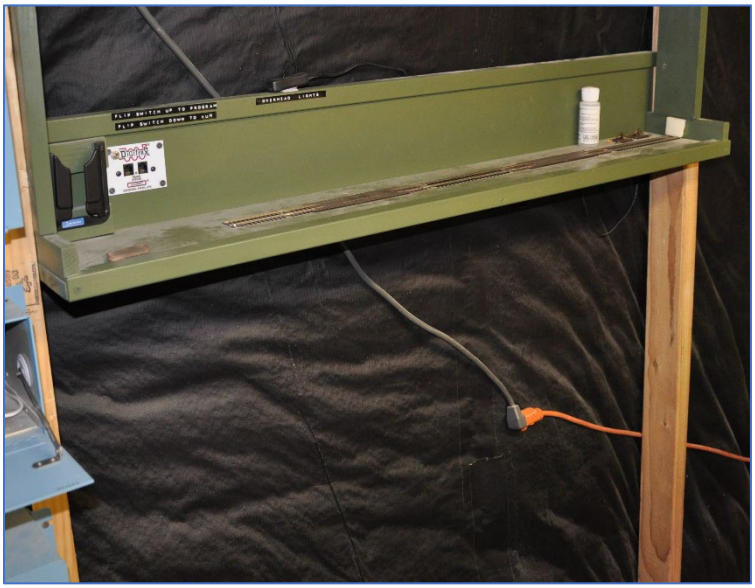
Before we built our headquarters, members had experience with DCC. Our modular layout was modified in the early 1990s. We had a system of traditional DC control with six-position rotary switches with four selectable throttles. We wire position five on the rotaries as the DCC position. This worked well as long as the "dispatcher" kept the positions in mind. This was a very early DCC implementation. Few members could spend the money for the costly decoders, and some locomotives just couldn't be equipped due to space in the locomotive or a split-chassis design. We don't' have any photos of this installation, but it was sound and worked well until we dismantled the modular layout and moved to the museum.



We underestimated to final scope and complexity of our layout and how DCC was going to evolve. Simple four-function decoders gave way to one increase in functions after another. Reverse loops, blocks, short-circuit protections, signaling, etc., were not always included in the plans, but had to be incorporated. And it doesn't end.

Oh, yes, surely a simple drawer would work, and we could expand as needed. Wiring was simple and neat. The wood was still resinous, and the drawer smelled nice. Actually, it wasn't all that naive. We constructed a simple loop of track and yard to let our members have some fun running trains, even if it was simple. This DCC installation and the 'layout' acted as a testbed. We had a Digitrax DCS200 a DB100 booster and three PM42 circuit breakers. Power was supplied by two open AC to DC transformers. We used a SoundTraxx 829002A - PTB-100 programming track booster (right photo, left-center) to program decoders. We had tried a DCC Specialties PowerPax, but it wasn't powerful enough to reliably program all decoders.

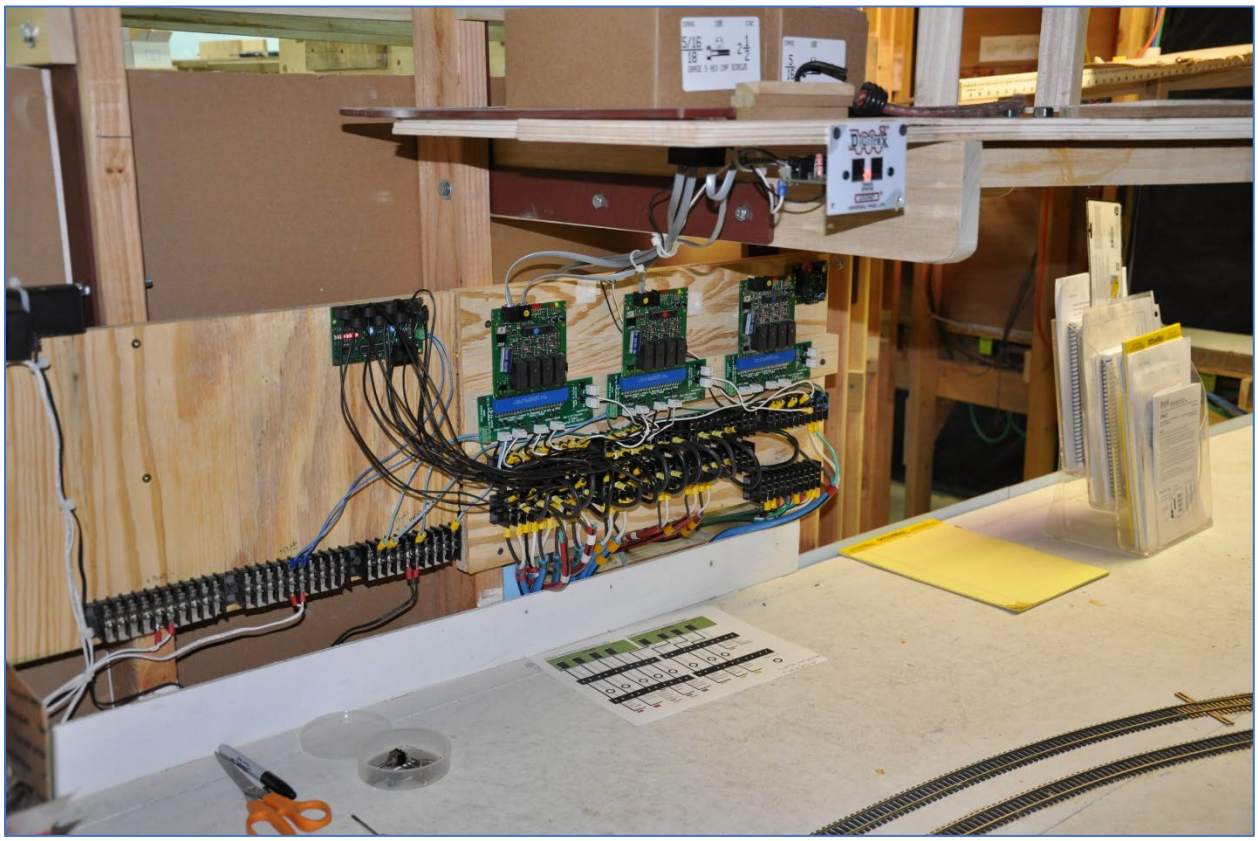
Our second DCC 'control center' was housed in a set of steel boxes we had scrounged at the Santa Fe building. Originally the boxes held PC cards that ran the dispatcher panels. Not a lot changed. We had the same basic components but improved the power delivery by adding a Digitrax PS2012, and the whole setup was independent of the layout. We got rid of the open



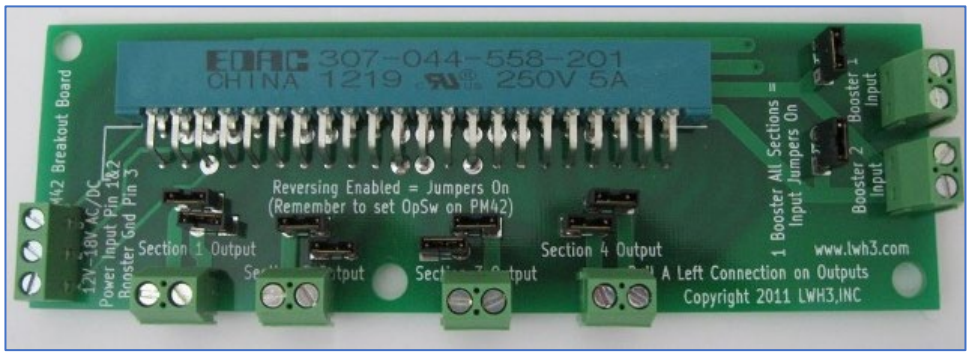
AC to DC transformers and used enclosed transformers. In addition to the DCC components, this version also delivered independent power to our Tortoise turnout motors.

Rather than a small programming section on the 'layout' we constructed this programming station with a modified Digitrax UP5 that easily allows switching from running to programming.

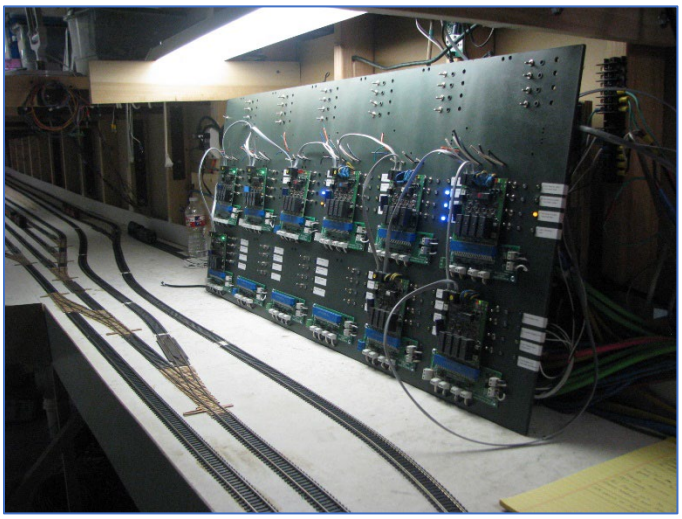
On to phase three.



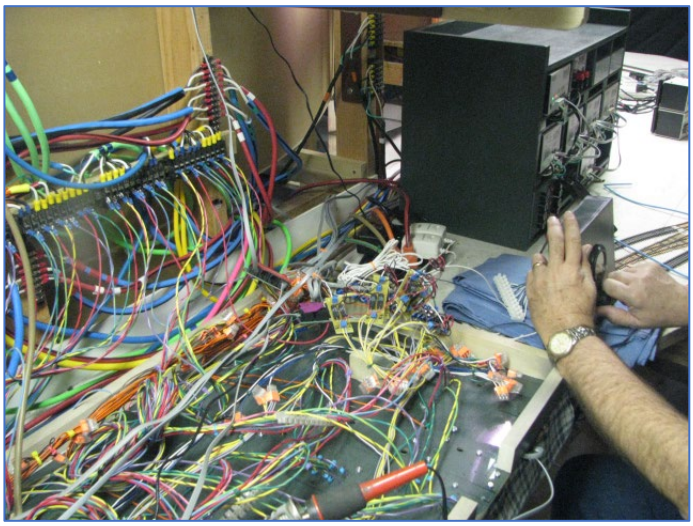
In this phase we went back to the layout wall. Again, the overall components remained about the same, but were mounted on a plywood board. We started testing occupancy detection by installing a Team Digital BlocD8 (center top with red LEDs). It also became necessary to easily access the block wiring runs, and we made liberal use of terminal blocks. We also incorporated Accu Lites breakout boards for the PM52s which made wiring much less tedious than soldering a lot of wires into tight spaces on 44-pin headers. At this point the layout consisted of 12 blocks.



Accu Lites PM42 breakout board

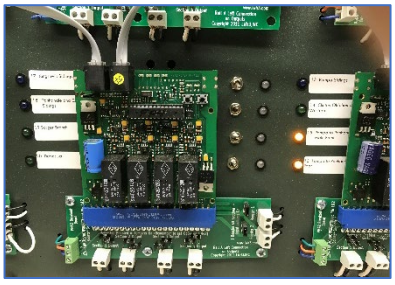


This design became standard for several years. As the layout came along, it was easier to determine the number of blocks we'd need. We left room for expansion if we had to split larger blocks into two or more smaller blocks. In this photo the board is being constructed, with some PM42s not installed. At the time we thought the ability to turn off individual blocks was important, thus the columns of chrome switches.



It looks like a wiring nightmare, but once a person spent some time figuring out wiring runs, the repetitive nature of the plan became evident. We used colored 14-gauge wire which emphasized the wiring repetition. In this version, the BlocD8s were mounted on the back of the board, but this was impractical for troubleshooting. At the top of the photo are terminal strips connecting the layout board wires to buss wires. We used common extension cords, with the plugs removed, for buses.

We built a separate 'box' for the power supplies, DCS200 and DB boosters. The power supplies were protected with 8-amp fuses.



A closeup of a PM42 installation

This is the power distribution center as it exists in early 2023. From left to right; DCS240, DB200, DB200, DB200, and DB200+. Another DB200+ is in the rear of the cabinet that powers the reverse loops, and one final DB200+ in its own location in the layout chase (more later).

2001-2002 Mark Gurries gathered:
Bob Jacobsen, Dave Falkenburg, John Jabour
to share ideas and projects they had been working on

DecoderPro October 28, 2002 - JMRI 1.1 released

Initial result of their teamwork

Panel Editor - Nick Kulp & Bob Jacobsen, 2003-2004

Layout Editor - Dave Duchamp, Dick Bronson 2006 - 2007, Pete Cressman 2009

Non-connected Efforts:
Operations - Dan Boudreau 2009
Timetables - Dave Sand 2018
LogixNG - Daniel Bergqvist 2019