Division 15

of

The National Model Railroad Association

Presents

A Clinic on ---

“Computer Automated Layouts”

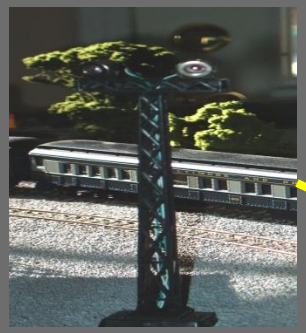
by

Mike Nicoletti

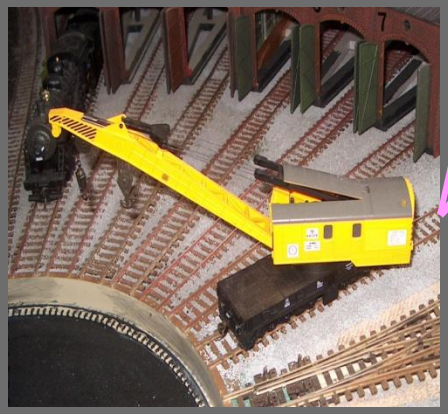
Standard DCC Throttle

Ceiling Light Control

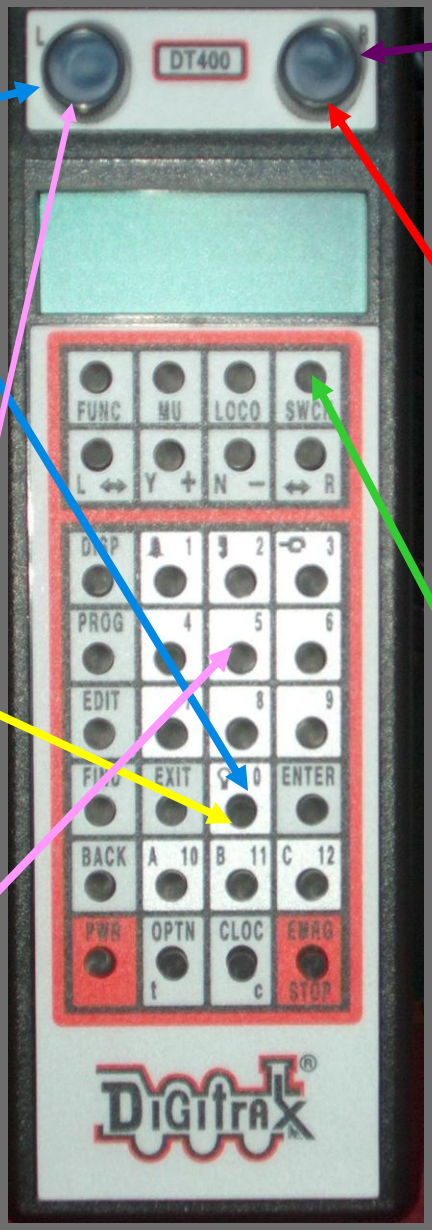
(ON/OFF and Dim)



Yard Lighting Control



Crane Movement Control

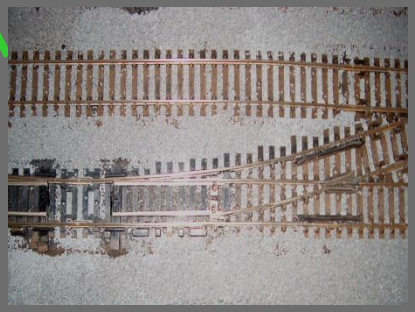


Standard Train Control

(Direction, Speed, Lights and Sound)

Turntable Control

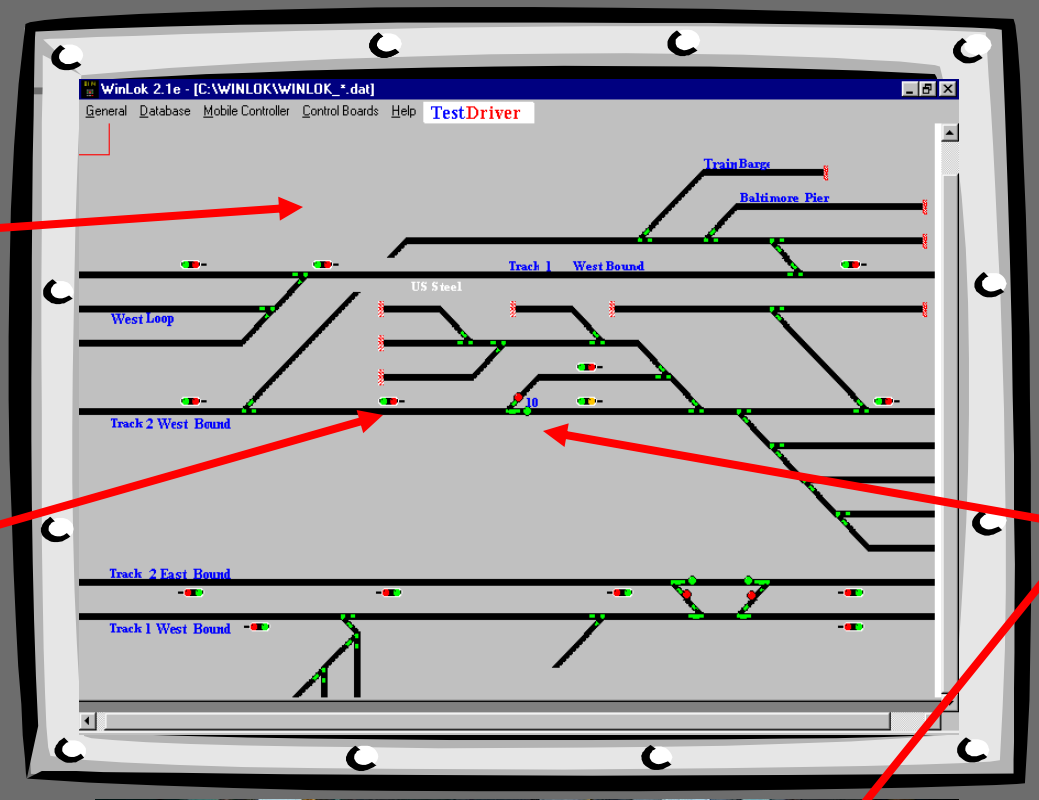
(Direction and Speed)



Turnout Control

Computer Control Your Railroad

Computer Graphic of Layout



Tie Signals to Turnout machines or to Block Sensor Circuits.

Turnouts controlled by Mouse point and Click

Train, Crane movement controlled by Joy-Stick

(Two Trains driven from one Joy-Stick--"X" and Y")

Utilizing Block Signal Control or Transponding, use your Computer to program Automatic Routes.

Getting Started

A few questions first:

1. Do I really want to Automate?
2. If I want to Automate do I need to have a DCC System and a computer?
3. What functions can be Automated today?
4. What hardware and software is Available today?
5. What do I need to get started?
6. What does this all cost?

Do I want to Automate?

- If your answer is yes then consider the following -----

1. Are you utilizing a conventional DC system or a DCC System?

If you are using a DC system you can Automate in general –

1. Signals, turnouts, block detection, road crossing signals all tied back to a traditional manual control panel.

2. If your are using DCC without a computer you can automate in general – 4 Aspect Signals, turnouts, Turnout Plant protection, block detection with plant protection, road crossings, route control, building lighting, room lighting, turn table control, train location detection etc. on a manual CTC panel.

If you are Utilizing DCC and a Computer ---

- All of the following functions and features can be Automated ---

1. 4 Aspect Signaling with Plant protection/Block detection protection and visual computer display of signal status/with dispatcher override.
2. Block Detection with visual Computer display of active blocks/with on screen manual override
3. Turnout control with on screen activation and display
4. Building lighting, turntable control, room lighting
5. Pro-typical CTC Panel Display or entire Layout
6. Train layout location displayed on computer Screen.
7. Automated Routes created with possibility to start and stop trains at specific locations on the layout.
8. There is more and it is up to your imagination!

What Hardware and Software is required today

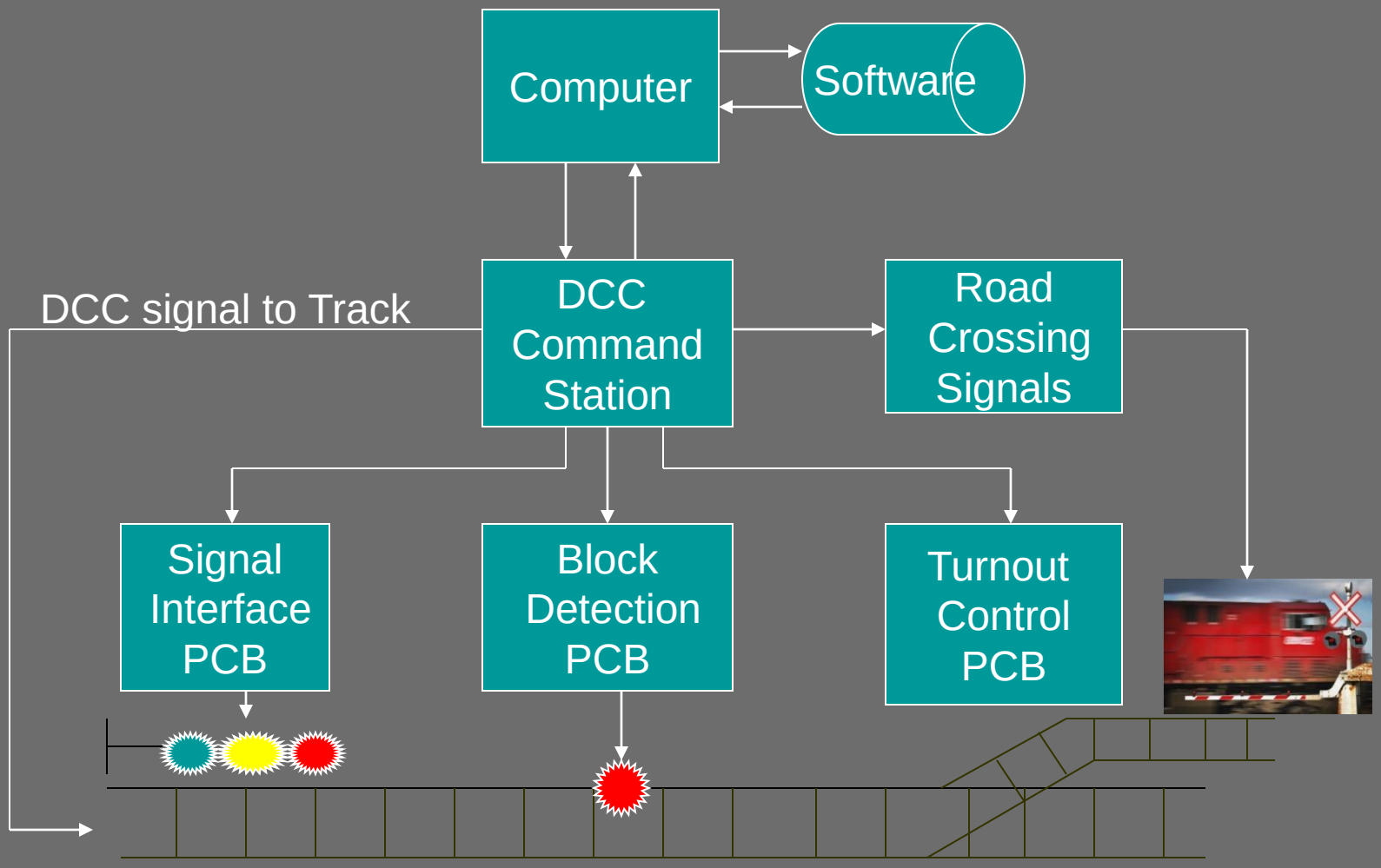
- The first major point to consider is the Hardware and the Software must be compatible! This is very important!
- You will need the following hardware
  - Computer (laptop or Desktop)
  - Pentium III or better
  - 1 gig hard drive
  - 500 meg Ram
  - Either an RS-232 Serial port or USB 2.0
  - CD reader
  - Operating System Windows 2000 or newer with Java script installed.
  - Cost- used Laptop <$250 or used Desktop < $200 if you don't have an old computer lying around the house

What Hardware and Software are required

- Next you will need hardware that connects to your computer/DCC Command Station that will interface to all of the functions that you want to monitor or control on your Layout. The following basic items are required-

1. Turnout interface PCB's
2. Signal Interface PCB's
3. Block Detection Interface PCB's
4. Road Crossing detection PCB's
5. Building and Room Lighting interface PCB's
6. Computer to Command Station Interface may or may not be required.
7. If required, reversing loop detection and turntable control circuits
8. Other items—a lot of wire, terminal strips with spade connectors etc

Basic Automated Building Blocks



Software

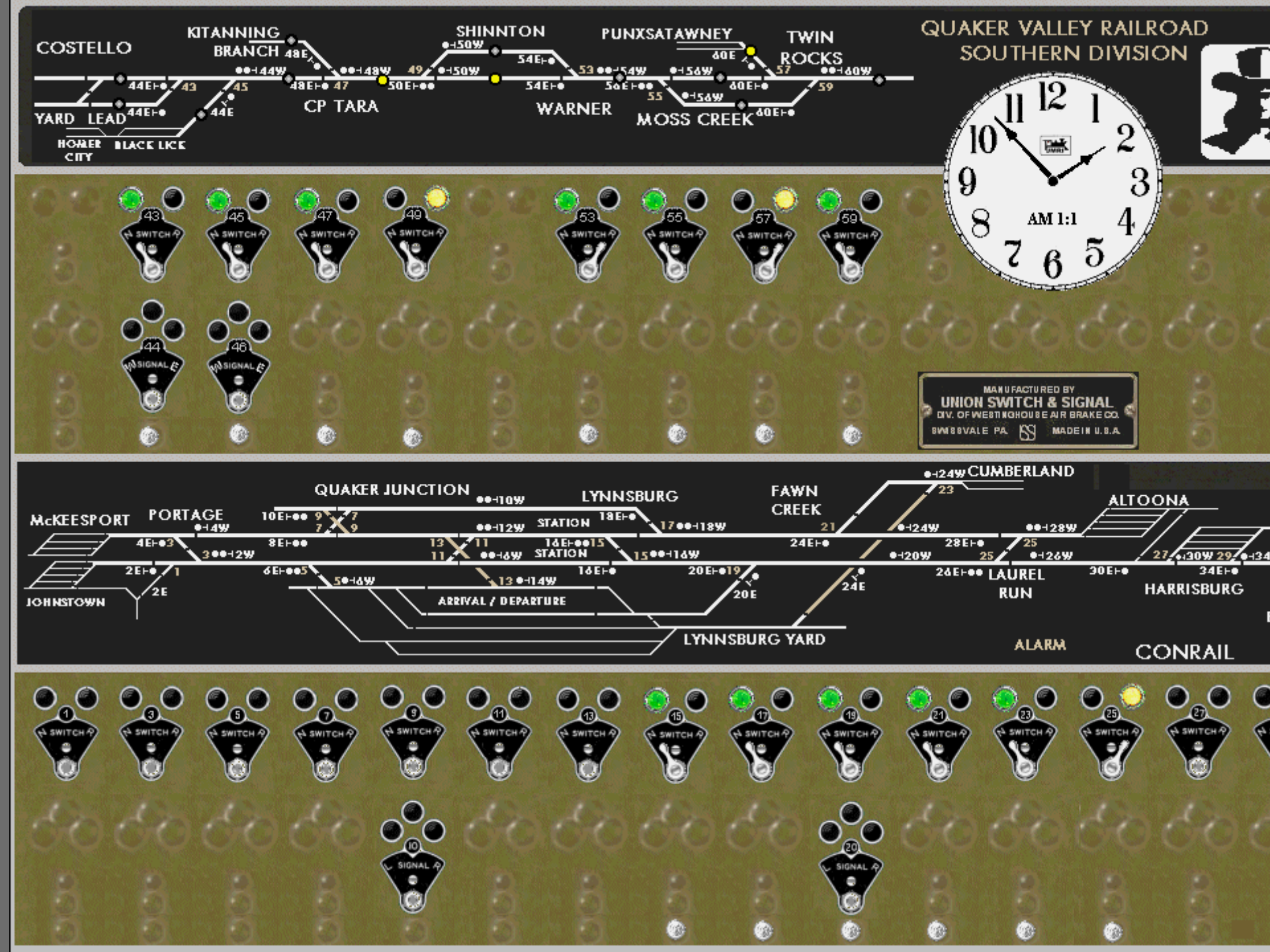
- Software is a very important decision! Don’t just buy the first thing you see!
- Remember these very important points—
  - Make sure the Software will perform the functions that you Want!
  - Make sure that the software you select will support your Command station and associated Hardware Interfaces you have or want.
  - Make sure the Software Fully Documented
  - Make sure the Software vendor has good Technical Support available.
  - Most Software is available from the Web as Demo programs. Download it and “try it before you buy it”!

Software Suppliers

- Here is a list of the Top Automated Layout Software Suppliers. You should research these Companies for yourself. Software is not cheap! It ranges from Free to $300 to $400 per copy. Once again this decision should not be taken lightly.
- Major Software Suppliers are---
  - JMRI (Free Software Downloadable from the Net.)
  - KAM (Layout Commander/Panel Pro and more ~$250
  - Winlok 2.1d ~$139.95 (no longer available)
  - C/MRI ~$? You must go to their web site for complete pricing information. You buy their Hardware which includes the Software.
  - Railroad & Company Inc. Version 5.8 Price $349 for “Train Controller”
  - I am sure that there are other Software applications out there, so look around carefully before you make a purchase.

Ease of Programming and Use

- These are my own experiences, and should not be construed as Gospel. I will use the Star system with 4 Stars as having the best Interfacablily, easy of use, ease of programming, Compatibility with most hardware, and price.
  - **JMRI** ✦ ✦ ✦ ✦
  - **WinLok** ✦ ✦ ✦
  - **C/MRI** (no experience, I have seen it work, looks good and it will perform if not all but most functions. Great user feedback from what I have read)
  - **KAM** (Panel Pro and Layout Commander) ✦ ✦
  - **Railroad & Co.** (no personnel experience, however many users rave about its functions and ease of use)


QUAKER VALLEY RAILROAD
SOUTHERN DIVISION
COSTELLO
KITANNING BRANCH
SHINNTON
PUNXSATAWNEY
TWIN ROCKS
YARD
LEAD
HOMER CITY
BLACK LICK
CP TARA
WARNER
MOSS CREEK
AM 1:1
43 SWITCH
45 SWITCH
47 SWITCH
49 SWITCH
53 SWITCH
55 SWITCH
57 SWITCH
59 SWITCH
44 SIGNAL
46 SIGNAL
MANUFACTURED BY
UNION SWITCH & SIGNAL
DIV. OF WESTINGHOUSE AIR BRAKE CO.
SWISSVALE PA.
MADE IN U.S.A.
McKEESPORT
PORTAGE
QUAKER JUNCTION
LYNNSBURG
STATION
FAWN CREEK
CUMBERLAND
ALTOONA
JOHNSTOWN
ARRIVAL / DEPARTURE
LYNNSBURG YARD
LAUREL RUN
HARRISBURG
ALARM
CONRAIL
1 SWITCH
3 SWITCH
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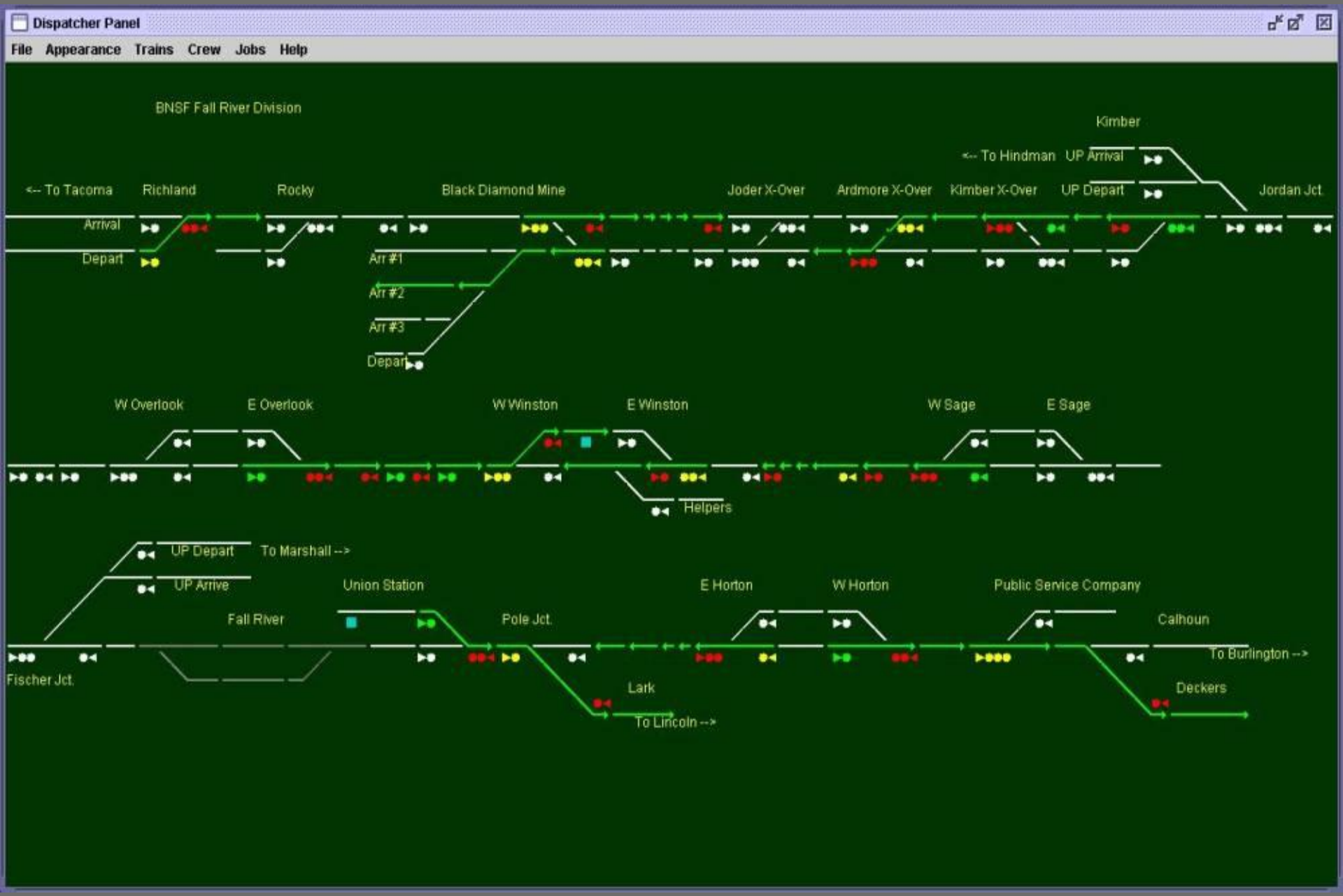
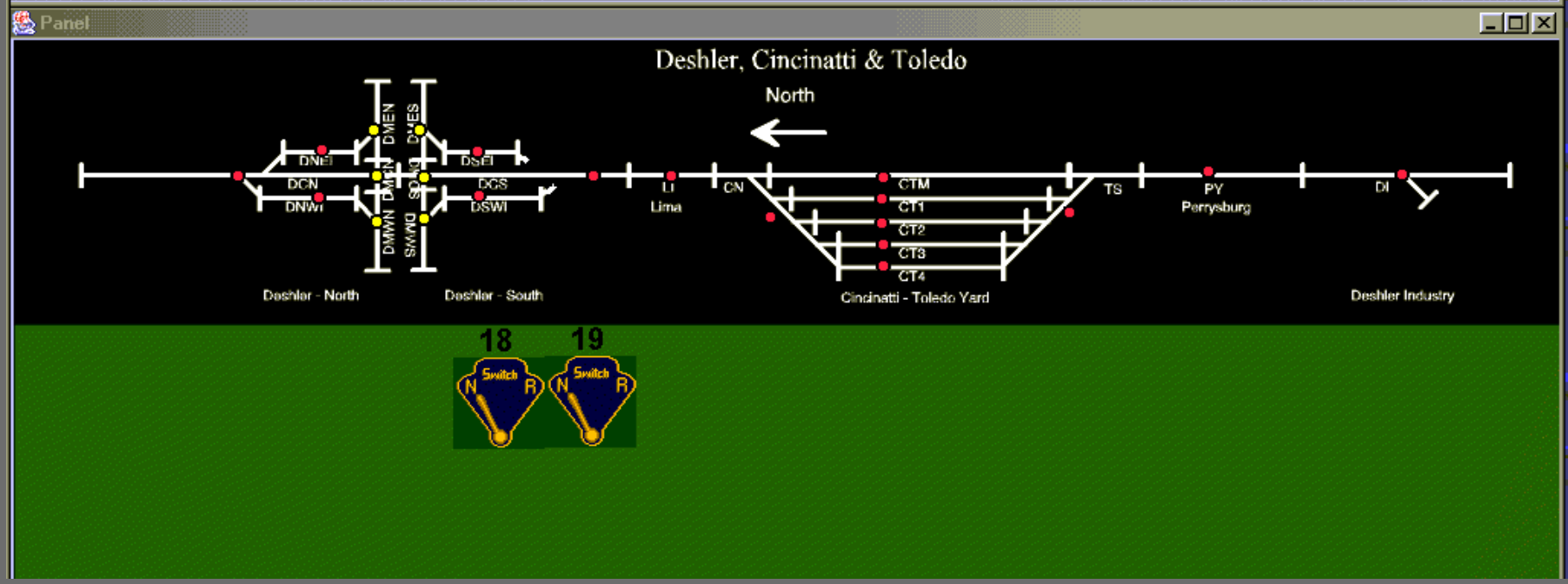
27 SWITCH
10 SIGNAL
20 SIGNAL


Dispatcher Panel
File
Appearance
Trains
Crew
Jobs
Help
BNSF Fall River Division
Kimber
<-- To Hindman
UP Arrival
<-- To Tacoma
Richland
Rocky
Black Diamond Mine
Joder X-Over
Ardmore X-Over
Kimber X-Over
UP Depart
Jordan Jct.
Arrival
Depart
Arr #1
Arr #2
Arr #3
Depart
W Overlook
E Overlook
W Winston
E Winston
W Sage
E Sage
Helpers
UP Depart
To Marshall -->
UP Arrive
Union Station
E Horton
W Horton
Public Service Company
Fall River
Pole Jct.
Calhoun
To Burlington -->
Fischer Jct.
Lark
Deckers
To Lincoln -->


Panel
Chicago to Willard
West
CWL
CW
Chicago Helix
CS
CI
CM
CA
Barr Yard - Chicago
CE
CEL
IN
Indiana
OH
Ohio
DW
DMWN
DNWI
DCN
DNEI
DMEN
DMWS
DSWI
DCS
DSEI
DMES
Deshler - West
Deshler - East
DE
WI
Willard
Switch
N
R
Signal
L
R


Panel
Deshler, Cincinatti & Toledo
North
DMEN
DMES
DNEI
DSEI
DCN
DNWI
DCS
DSWI
DMWN
DMWS
Deshler - North
Deshler - South
LI
Lima
CN
CTM
CT1
CT2
CT3
CT4
Cincinatti - Toledo Yard
TS
PY
Perrysburg
DI
Deshler Industry
18
19
Switch
N
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WinLok 2.1e - [C:\WINLOK\SODIGI_*.dat]

General Database Mobile Controller Control Boards Help DIGITRAX

CTC Board

S. D. Coast Division

West

Mojave A B C D

Saugus

San Jose Guadalupe San Luis Obispo Gaviota Santa Barbra Montalvo Ventura Oxna

San Jose

Saugus

San Jose Guadalupe Gaviota Montalvo Ventura

W

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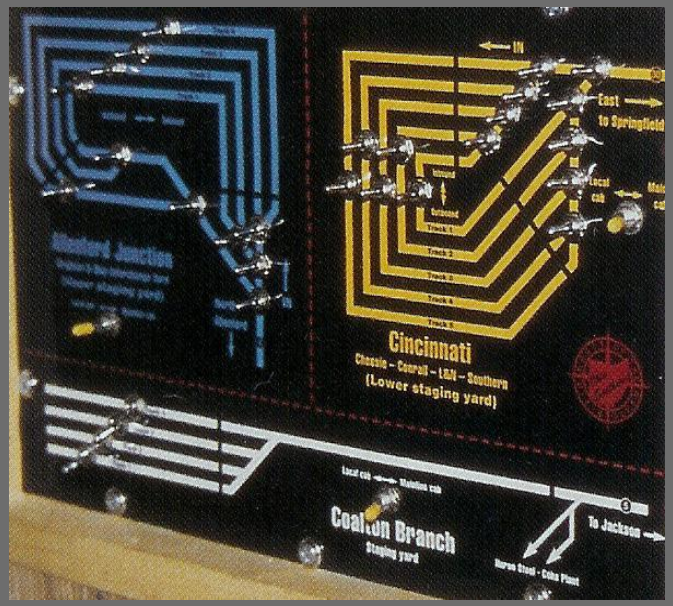
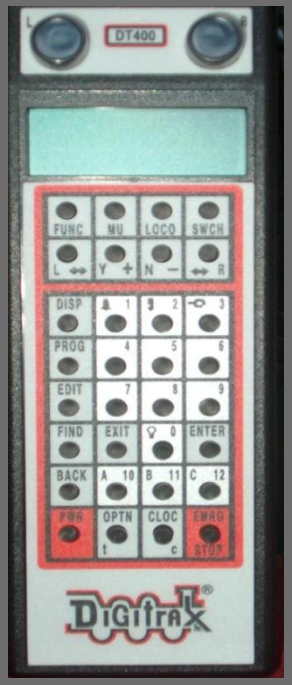
The Choice is Yours!

Just Think about the Possibilities!



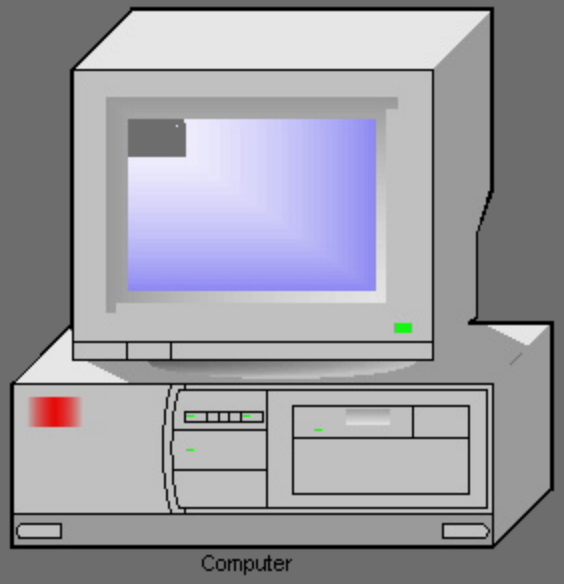
Conventional CTC Panel

OR



Hand Held Throttle

OR



Computer Control

Thank you for your Kind attention and

“Just Think of the Possibilities”