



STAYING ALIVE!

Devices that add juice to keep you running

MR LIFE IS NOT PERFECT

- Locomotives stall on switch points
- Dirty Track
- Corrosion and Oxidation blocks Conductivity
- Gaps in the track
- DCC requires better connectivity and no power sinkholes
- ... All that Sound

KEEP ALIVE – SHOULD I USE IT?

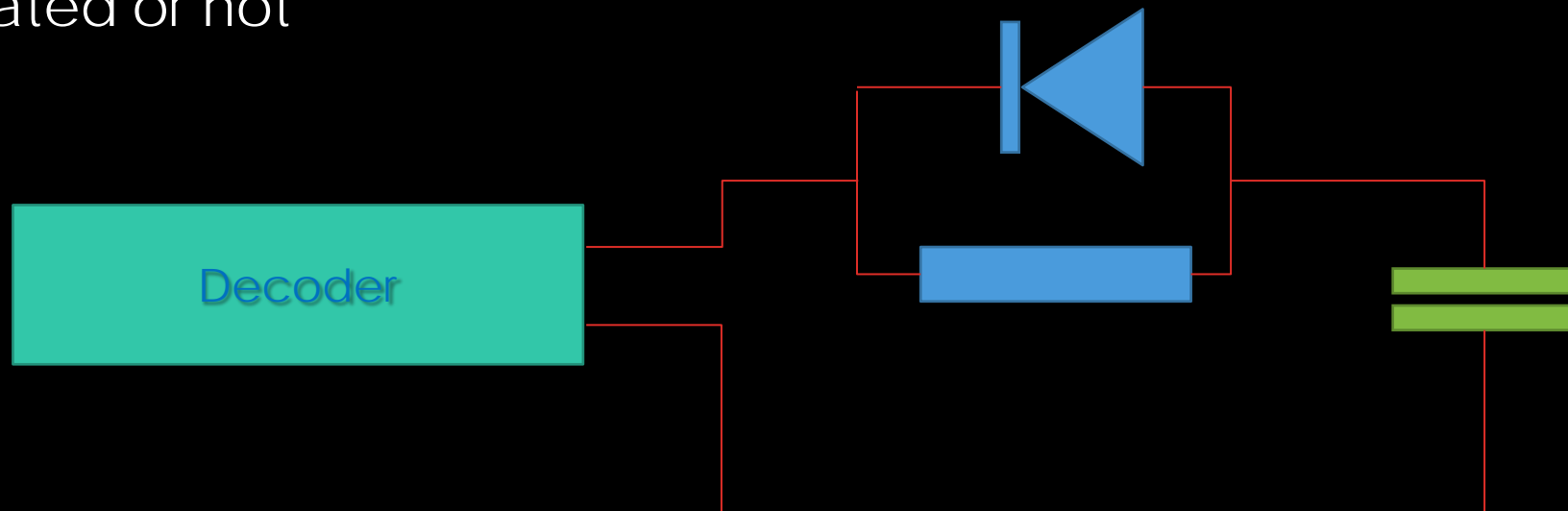
- Pros:
 - Smooth running of locomotives
 - Keeps going...
 - Less disruption in sound
 - Extends motor brush life(?)
- Cons:
 - Requires an additional device installed in the loco
 - Space and cost considerations
 - Decoder compatibility and support
 - Difficulties in DCC programming
 - Arcing and Spikes during shorts
 - Runaway locomotives

EM..POWERMENT

- Stay alive - Keep the brain alive
 - Requires less power
 - Preserves state of the decoder
 - Does not power the motor
- Keep Alive – Reserve Power
 - Enabled in small scale by advances in super cap technology
 - Preserves state of the decoder and powers the locomotive
 - High power requires high current – Inrush problem
 - May require new DCC programming equipment
 - Decoder support

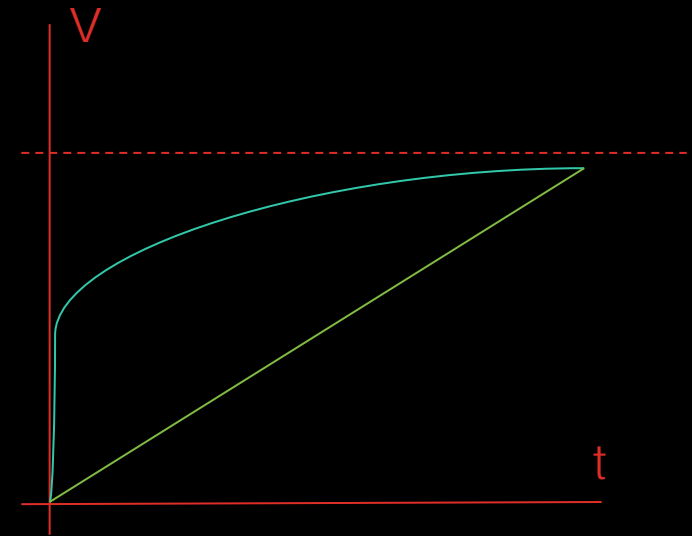
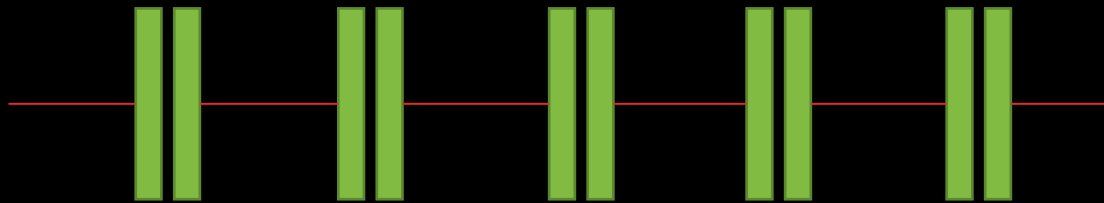
PRINCIPLES OF KA DEVICES

- Energy storage in large containers
- DCC voltage amplitudes
- Slow charge, fast discharge
- Regulated or not



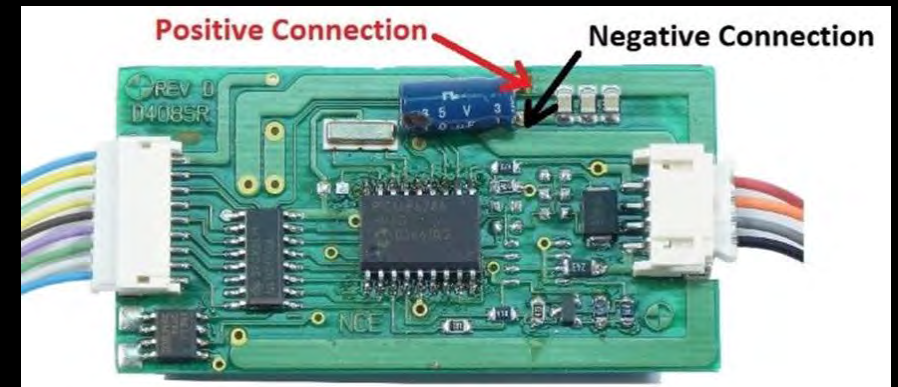
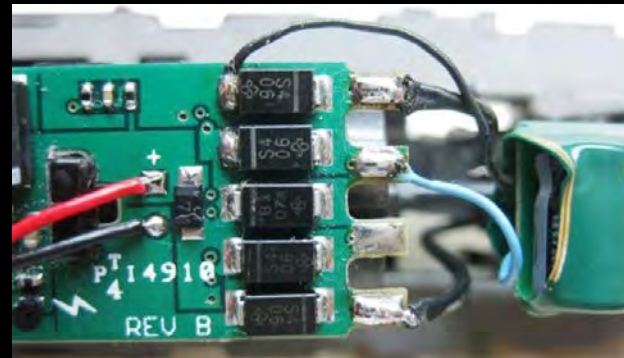
DETAILS OF IMPLEMENTATION

- Super "Gold" capacitors can hold enough charge – but at low voltage
- Options:
 - Convert low DC to DCC levels (LENZ)
 - Current limiting by resistor or current source
 - Connecting capacitors in series –
Give up capacity to support high DC voltage
 - Regulate DC level - Cost?



INSTALLING A KEEP-ALIVE DEVICE

- <http://www.members.optusnet.com.au/mainnorth/alive.htm>
- Generally, Keep alive devices connect to the decoder with 2 wires, where:
 - The **BLUE wire** is connected to the **Function Common - DC Positive** (Blue wire).
 - The **BLACK wire** is connected to the **DC Negative** of the decoder.



DECODER COMPATIBILITY AND SUPPORT

- Later model decoders have a connection to a KA device
- Old decoders may not work with KA
- Non- BEMF decoders may experience a drop in speed
- Some CVs may have to be changed (CV29 = 2, disable DC mode)
- Sound decoder programming boosters (Reading CVs) and limiting the in-rush current
- Commercial vs. DIY
- **WARNING: DO NOT EVER connect a KA device directly to DCC !**

REFERENCES

- <https://sites.google.com/site/markgurries/home/decoders/keep-alive-compatibility>
- <http://www.members.optusnet.com.au/mainnorth/alive.htm>
- http://model-railroad-hobbyist.com/magazine/mrh-2013-03-mar/di_staying-alive
- <https://www.youtube.com/watch?v=Tu-8mkwpsWs>