
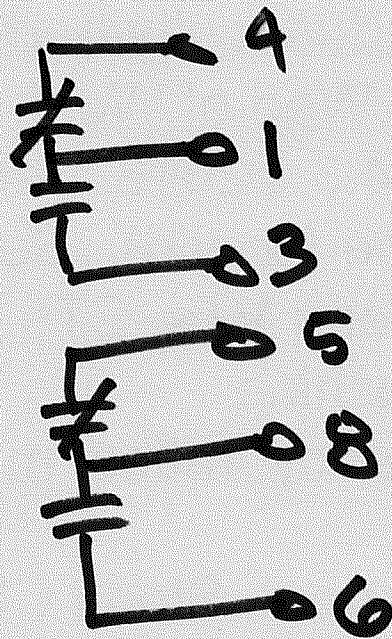
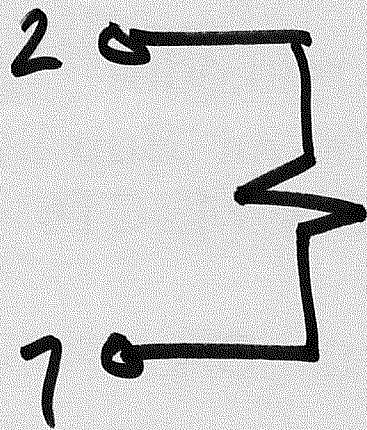


## Topics for Today:

- <http://www.ece.mtu.edu/faculty/bamork/EE5223/index.htm>
- Labs - 5224 - Begins Wed of Week 3
- Software - Aspen at remote.mtu.edu
- How to read a one-line (cont'd). See handout "Sub Schem"
- Instrument transformers: VTs, CTs, CCVTs, MOCTs, etc.
- CTs - pedestal vs. bushing
- CT saturation & accuracy, ratios, multi-ratio Cts
- Next:
  - Print out "CT" handout, Study Chapter 5 info on CT saturation & accuracy
  - Radial Protection (read sections 12.5, 12.6, G&S Ch.10)

NO  "A Contact"

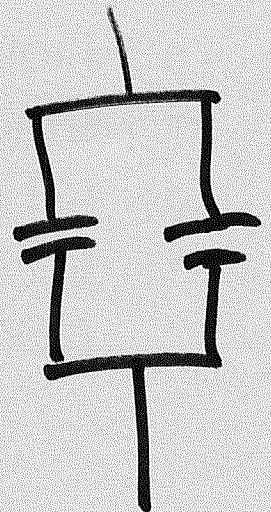
NC  "B Contact"



← "Form C"



AND



OR

# DEVICE NOS:

Ch.1 §1.4: Device Nos

(typos in older printings) - 2-digit numbers

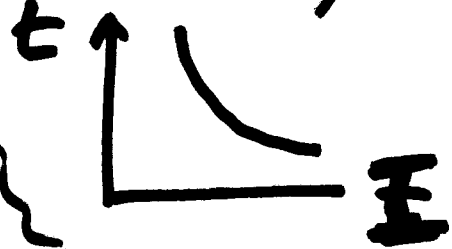
4th printing is OK. Or type of protective device.  
1st " " bad.

Ex:

50 = Inst. O.C.  
51 = "Time O.C." (inverse)

67 - Directional O.C.

21 - Impedance  
(also directional)



# Relay Schematics

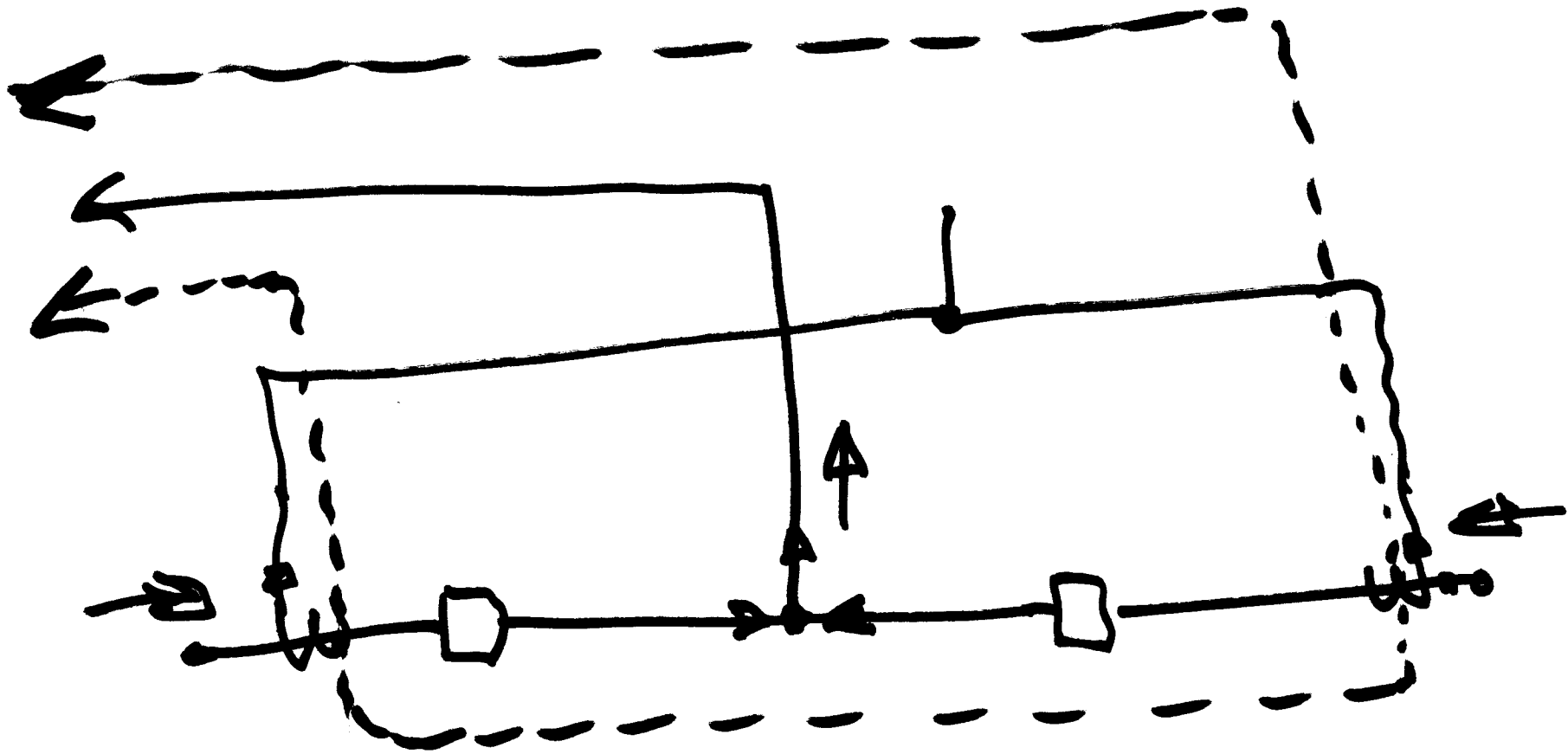
## 1) AC

- HV Lines, Equip, Connections
- Int. Xfmrs (CTs, VTs, etc)
- Relays
- Basic Control Functions.

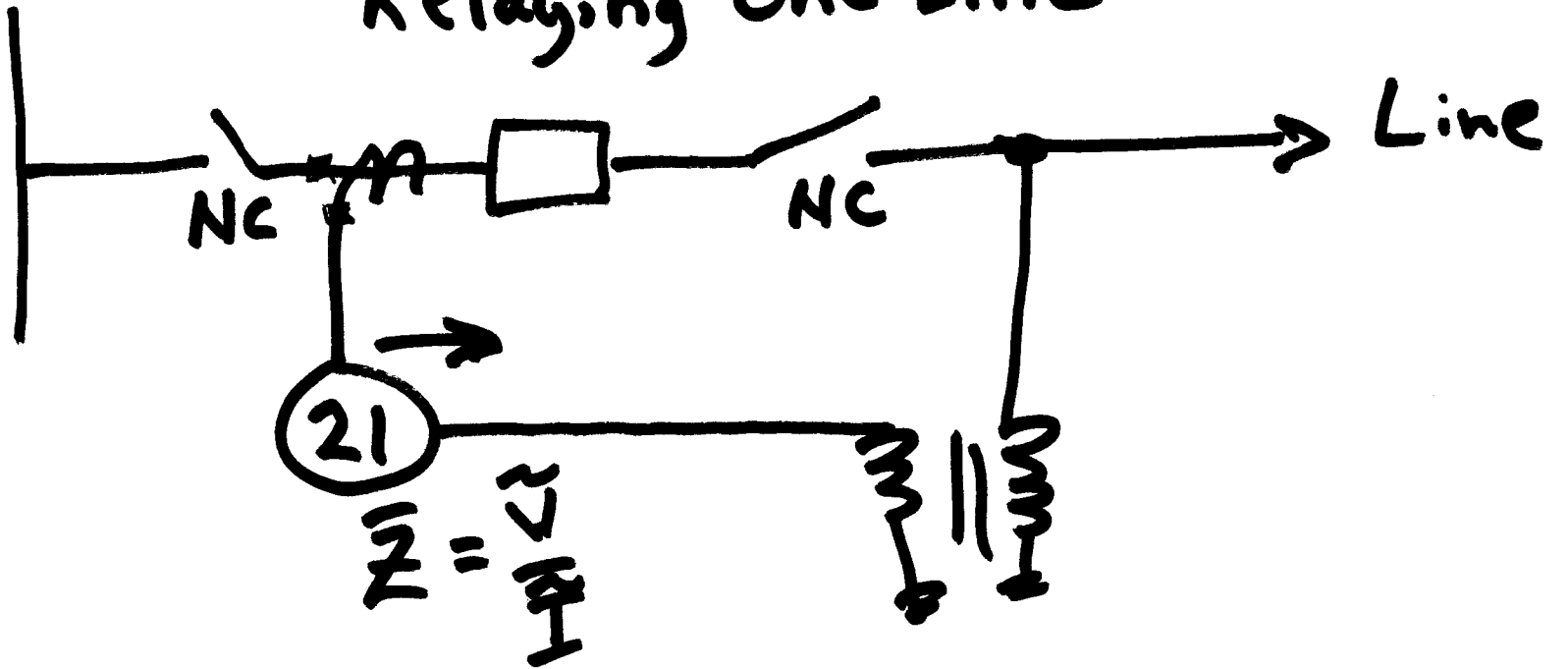
## 2) DC Control

- Relay Logic, And/or
- CB close/trip
- Battery System, eg. 125V DC.

## 3) Station Power, Aux



# "Relaying One-Line"



# A B C "3-Line"

