

**Circuit Breaker Time / Current Curves
(Earth / Ground Current)**

VCP-T, VCP-TR, T-VAC, and T-VACR Medium Voltage Circuit Breakers
Response: Earth / Ground Trip using Zero Sequence (FLAT & I²T)
This curve is for 50Hz or 60Hz applications.

Notes:

1. The Zero Sequence scheme requires that sensor be wired to breaker terminals B-4 and B-5 and also requires a jumper on terminals B-6 to B-7 to enable the Zero Sequence functionality.
2. For phase current time/current curves, see curves 5721B01 through 5721B06 and 5721B08 through 5721B11.
3. The curve is shown in multiples of either the rating plug (I_n) or multiples of an External CT Ground Ratio in Amperes. With a 50:1 sensor and the External Ground Current Ratio programmed accordingly, ground current at 1.0x would be 50A.
4. The Earth and Ground Fault settings have conventional 100% ± 10% as their pick up points. The Earth Fault pickup has a minimum setting of 0.1 x sensor rating, whereas the Ground Fault pickup is limited to a minimum setting of 0.24 x sensor rating.
5. With zone interlocking on ground fault utilized and no restraining signal, the minimum time band (FLAT) applies regardless of setting.
6. External control power is required to ensure earth fault tripping for fault currents and earth fault setting less than 0.24 per unit.
7. Earth Slope: FLAT
Tolerance is +0 / -80 ms except
0.10s setting band is 0.06 to 0.13
0.15s setting band is 0.08 to 0.17
0.20s setting band is 0.15 to 0.22

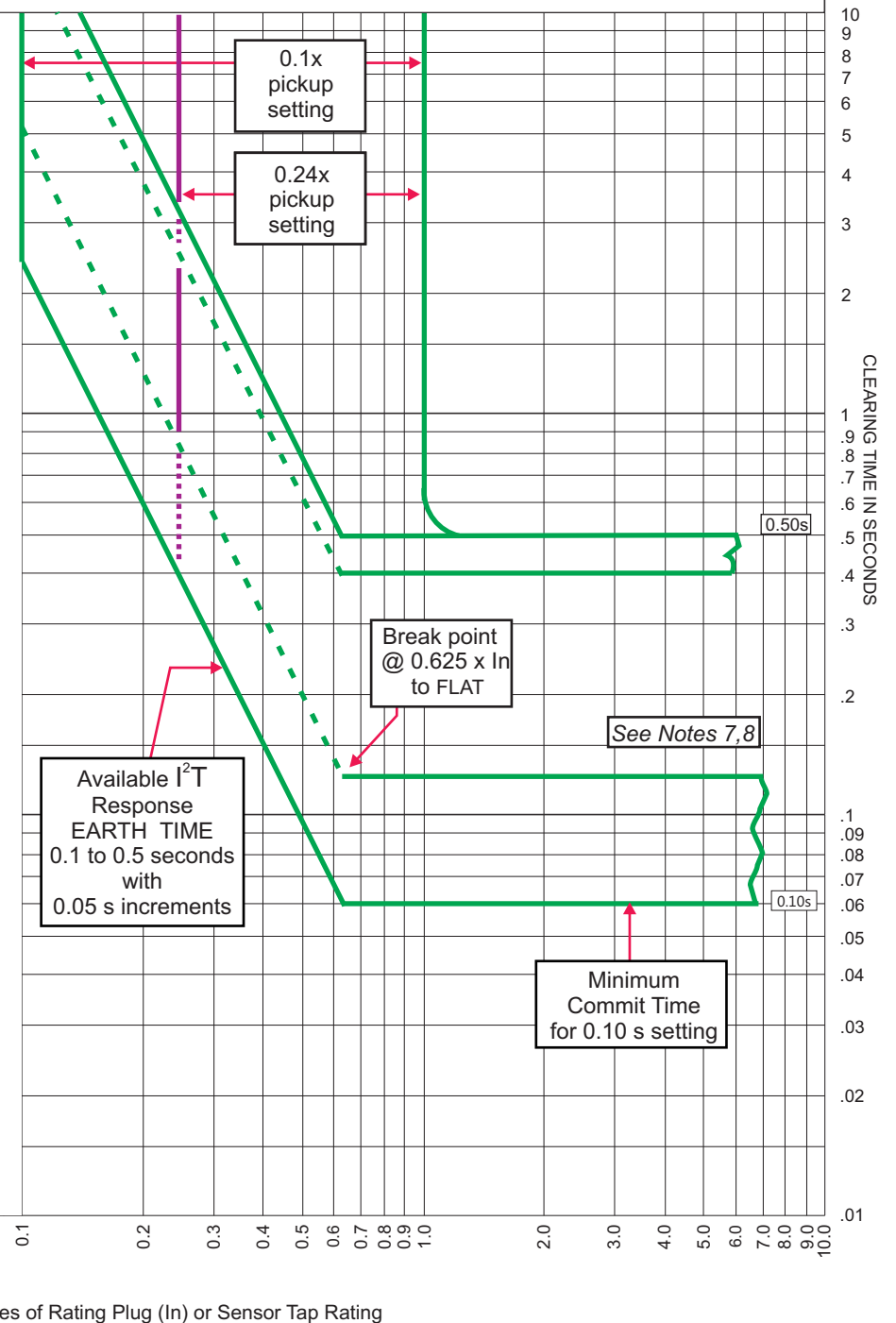
8. Earth Slope: I²T
I²T slope flattens out at 0.625x I_n for top of band with FLAT time minimum value prevailing for bottom of band.

Curve Trip Equation: Trip = (Earth TIME) x 0.39 / I_n² (top)

Curve Trip Equation: Trip = ((Earth TIME) x 0.39 / I_n²) * 0.70 (bottom)

The above equations indicate tolerance is +0 / -30% for all settings except

- 0.10s is +30% -25%
- 0.15s is +20% -25%
- 0.20s is +10% -25%



Current in Multiples of Rating Plug (I_n) or Sensor Tap Rating