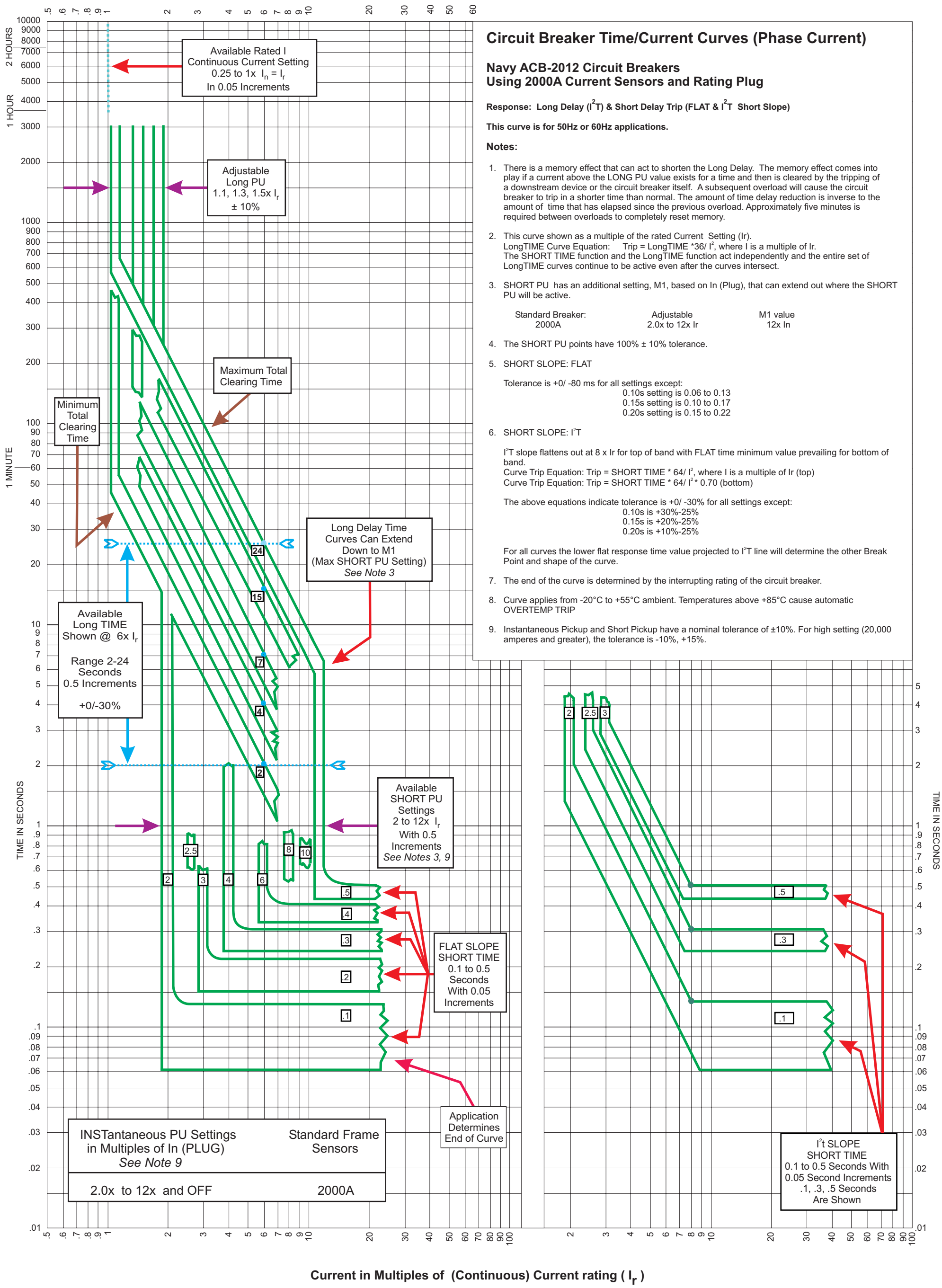
1150N (NAVY) - Long Delay & Short Delay Curves



Circuit Breaker Time/Current Curves (Phase Current)

Navy ACB-2012 Circuit Breakers
Using 2000A Current Sensors and Rating Plug

Response: Long Delay (I^2T) & Short Delay Trip (FLAT & I^2T Short Slope)

This curve is for 50Hz or 60Hz applications.

Notes:

1. There is a memory effect that can act to shorten the Long Delay. The memory effect comes into play if a current above the LONG PU value exists for a time and then is cleared by the tripping of a downstream device or the circuit breaker itself. A subsequent overload will cause the circuit breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset memory.

2. This curve shown as a multiple of the rated Current Setting (Ir).
   LongTIME Curve Equation: Trip = LongTIME *36/ I^2, where I is a multiple of Ir.
   The SHORT TIME function and the LongTIME function act independently and the entire set of LongTIME curves continue to be active even after the curves intersect.

3. SHORT PU has an additional setting, M1, based on In (Plug), that can extend out where the SHORT PU will be active.

Standard Breaker:	Adjustable	M1 value
2000A	2.0x to 12x Ir	12x In

4. The SHORT PU points have 100% ± 10% tolerance.

5. SHORT SLOPE: FLAT

   Tolerance is +0/ -80 ms for all settings except:
   0.10s setting is 0.06 to 0.13
   0.15s setting is 0.10 to 0.17
   0.20s setting is 0.15 to 0.22

6. SHORT SLOPE: I^2T

   I^2T slope flattens out at 8 x Ir for top of band with FLAT time minimum value prevailing for bottom of band.
   Curve Trip Equation: Trip = SHORT TIME * 64/ I^2, where I is a multiple of Ir (top)
   Curve Trip Equation: Trip = SHORT TIME * 64/ I^2 * 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%

   For all curves the lower flat response time value projected to I^2T line will determine the other Break Point and shape of the curve.

7. The end of the curve is determined by the interrupting rating of the circuit breaker.

8. Curve applies from -20°C to +55°C ambient. Temperatures above +85°C cause automatic OVERTEMP TRIP

9. Instantaneous Pickup and Short Pickup have a nominal tolerance of ±10%. For high setting (20,000 amperes and greater), the tolerance is -10%, +15%.

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