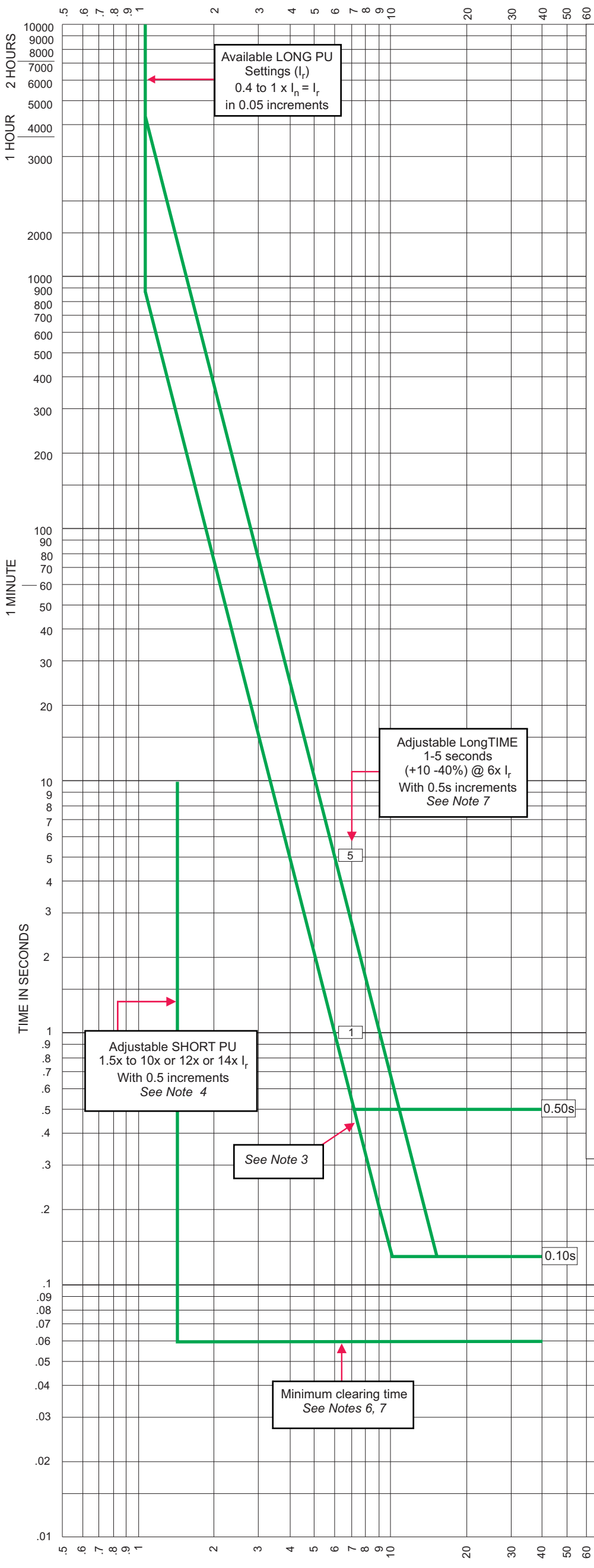
EATON
Powering Business Worldwide

Digitrip 1150 / 1150*i* - I^4T Curves

Range: 1-5 seconds @ 6x I_r



Circuit Breaker Time/Current Curves (Phase Current)

Magnum, Magnum DS and Magnum SB Circuit Breakers

Response: Long Delay (I^4T) & Short Delay Trip
This curve is for 50Hz or 60Hz applications.

Notes:

1. If long delay thermal memory is enabled, trip times may be shorter than indicated on this chart.

2. This curve is shown as a multiple of LONG PU Setting (I_r).
   The actual Pickup point occurs at 110% of the I_r, current, with a ±5% tolerance.
   LongTIME Curve Equation:
   Trip = LongTIME *1296/I^4,where I is a multiple of I_r.

3. In this time region <= 0.5 seconds the I^4T Long TIME function will flatten out and be no faster than the Short TIME setting. This is to avoid a notch in graph.

4. SHORT PU has also has a M1 setting , which may extend out where the SHORT PU will become active.

	Adjustable Range	M1 setting
Narrow Frame:		
200A through 1250A	1.5 to 14x I_r	M1=14x I_n
1600A	1.5 to 12x I_r	M1=12x I_n
2000A (IEC only)	1.5 to 10x I_r	M1=12x I_n
Standard Frame:		
200A through 1250A	1.5 to 14x I_r	M1=14x I_n
1600A, 2000A, 2500A	1.5 to 12x I_r	M1=12x I_n
3000A, 3200A	1.5 to 10x I_r	M1=10x I_n
Double Wide Frame:		
2000A, 2500A	1.5 to 14x I_r	M1=14x I_n
3000A, 3200A, 4000A, 5000A	1.5 to 12x I_r	M1=12x I_n
6000A, 6300A (IEC only)	1.5 to 10x I_r	M1=10x I_n

5. The SHORT PU points have conventional 100% ± 5% tolerance.

6. SHORT TIME: FLAT only - setting 0.1s through 0.5s in .05s increments.
   Tolerance is +0/ -80 ms of setting 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

7. With Zone Selective Interlocking enabled, max trip times w/o aux power are as follows:

	3-phase fault
60 Hz	75ms
50 Hz	85ms

When only one pole is carrying current and a fault occurs, trip times increase to 90ms at 60Hz and 95ms at 50 Hz, however with Aux power these times would be reduced by 10%

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

9. Curve applies from -20°C to +55°C ambient. Temperatures above +85°C cause automatic trip.

10. These curves are comprehensive for the complete family of Magnum breakers, including all frame sizes, ratings, and constructions. The total clearing times shown are conservative and consider the maximum response times of the trip unit, the circuit breaker opening, and the interruption of the current under factors that contribute to worst case conditions, like: maximum rated voltages, single phase interruption, and minimum power factor. Faster clearing times are possible depending on the specific system conditions, the type of Magnum Circuit Breaker applied, and if any arc reduction settings are employed. Contact Eaton for additional information.