Technical Data **TD012067EN**

Effective November 2019
Supersedes February 2018

Time current curves Power Defense MCCB Frame 5 PXR electronic trip units Standards: UL, CSA, IEC, CCC

Contents

Powering Business Worldwide

Table 1. Revision notes

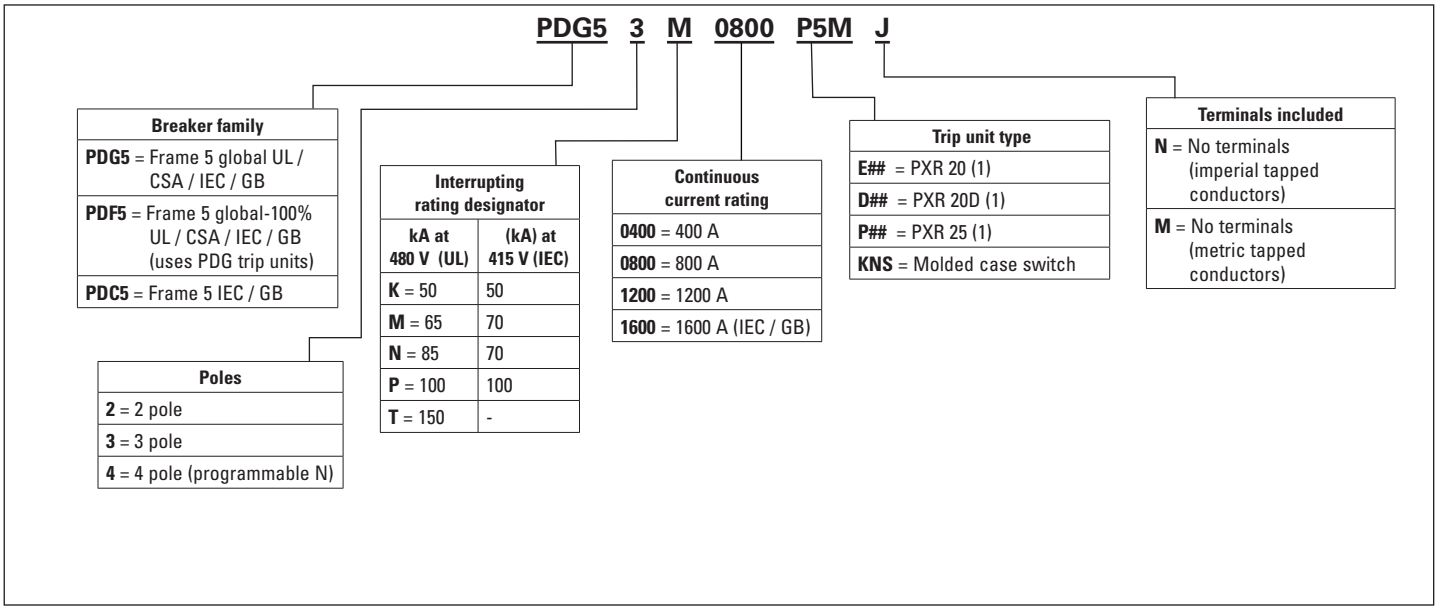
Note: Unless noted below, all curves remain unchanged from their prior revision.

Revision	Figure number	Page	Date
1 Power Defense frame 5 initial release			12/14/2018
2 Edits to curve notes			02/06/2019
3 Short delay tolerances adjusted	2-16		11/07/2019
Ground delay tolerances adjusted	17-20		
400A frame curves added	28-31		

This information is provided only as an aid to understand the catalog numbers.

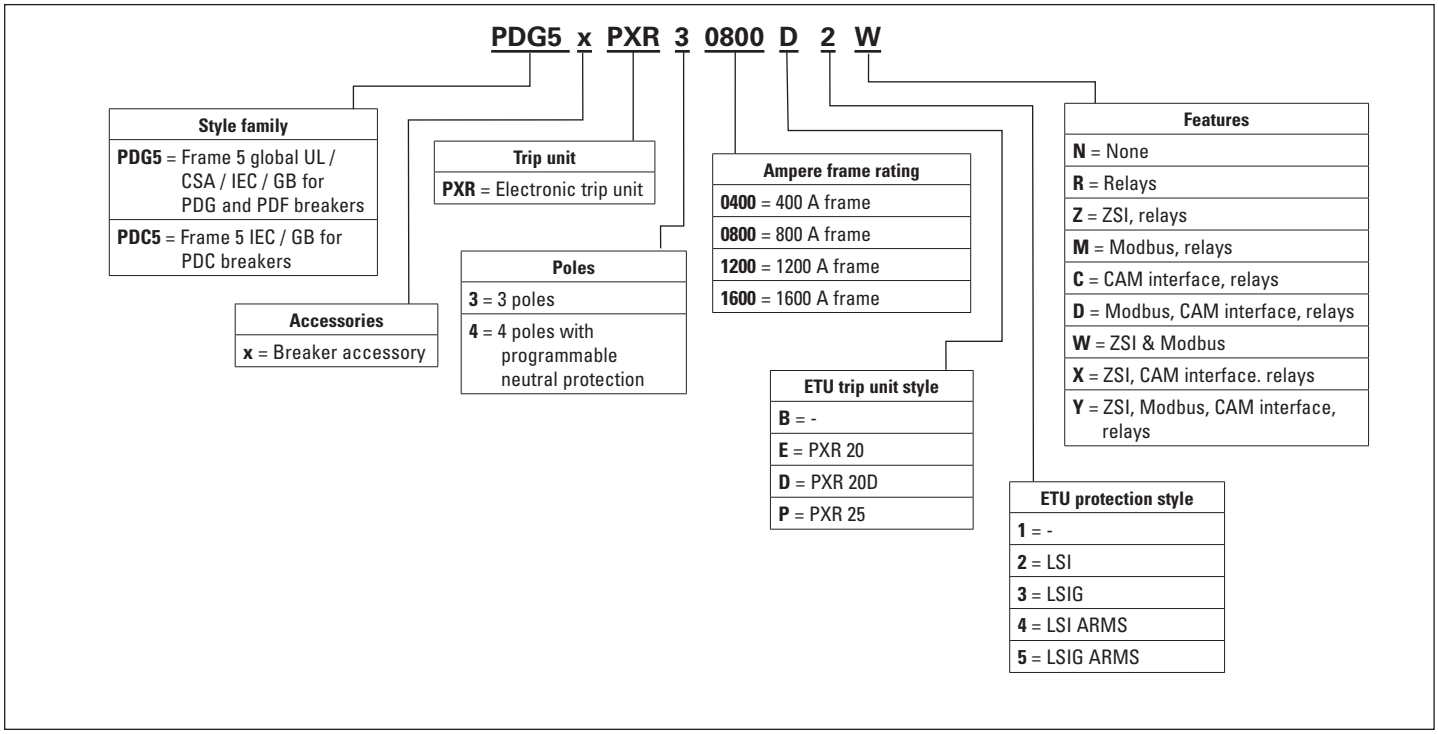
It is not to be used to build catalog numbers for circuit breakers or trip units as all combinations may not be available.

Table 2. Circuit breaker catalog number convention



Note: 1 See catalog for ## (protection type and available configured options).

Table 3. Electronic trip unit catalog number convention



Note: IEC standard breakers include the CE mark; GB standard breakers include the CCC mark.

This information is provided only as an aid to understand the catalog numbers.

It is not to be used to build catalog numbers for circuit breakers or trip units as all combinations may not be available.

Table 4. Symmetrical RMS interruption ratings I_{cu} (kA) for each breaker frame

		UL / CSA			IEC / CCC					
	Voltage / Frame	240V	480V	600V	240V	415V	440V	480V	525V	690V
Globally rated	PDG5xK	85	50	25	85	50	35	35	25	10
	PDG5xM	100	65	35	100	70	50	50	30	15
	PDG5xN	150	85	50	150	70	70	65	35	20
	PDG5xP	200	100	65	200	100	100	85	40	35
Globally rated (UL 100%)	PDF5xK	85	50	25	85	50	35	35	25	10
	PDF5xM	100	65	35	100	70	50	50	30	15
	PDF5xN	150	85	50	150	70	70	65	35	20
	PDF5xP	200	100	65	200	100	100	85	40	35
IEC / GB only	PDC5xK	-	-	-	85	50	35	35	25	10
	PDC5xM	-	-	-	100	70	50	50	30	15

Table 5. Curve notes

1.	These curves apply for 50Hz and 60Hz applications
2.	The maximum voltage rating for the frame style is stated in Table 4.
3.	These curves are comprehensive for Power Defense style circuit breakers including frame sizes, ratings and constructions stated.
4.	The total clearing times shown include the response time for the trip unit, the breaker opening and the interruption of the current. The bottom of the time band is the minimum commit to trip time.
5.	The end of the curve is determined by the application or the interrupting rating of the circuit breaker.
8.	All electronic trip units have an over temperature protection feature that will trip the breaker when the internal temperature of the ETU is over 105ºC
9	All time current data based on 3 phase testing.

Labels

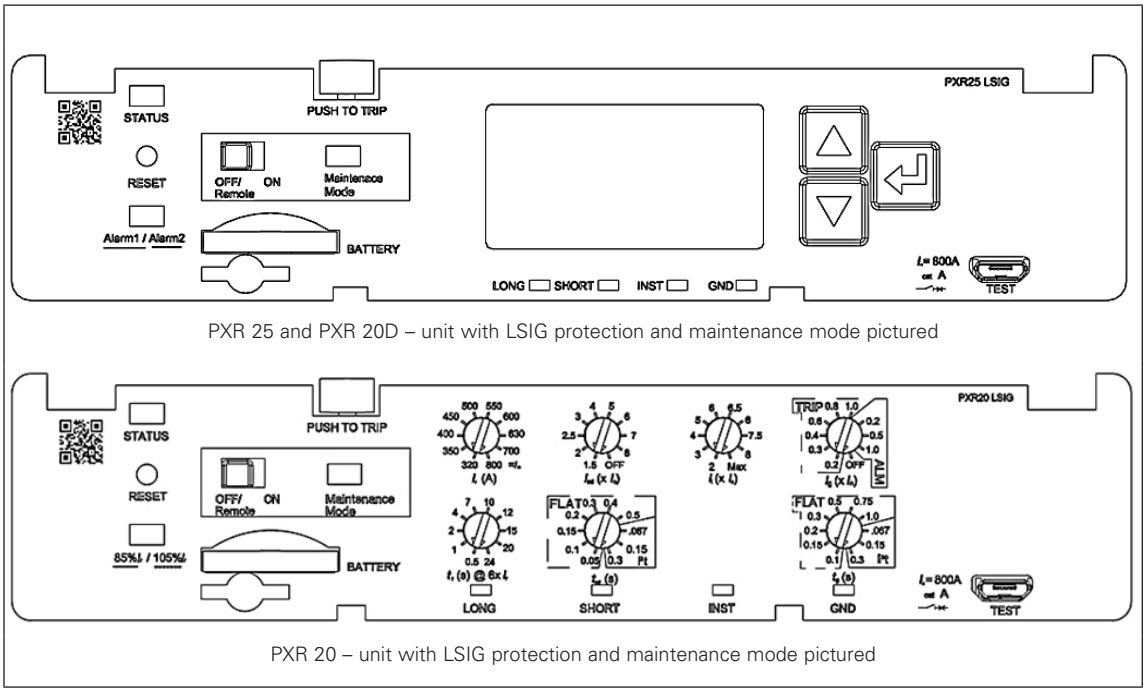


Figure 1. Power Defense frame 5 trip unit front labels.

Note: Trip unit drawings in Figure 1 are representative of the face plates provided. Values on the trip unit dials will change based upon the specific breaker and trip unit. Refer to the time current curve of the breaker or the PXR User Guide for the specific settings.

Curves

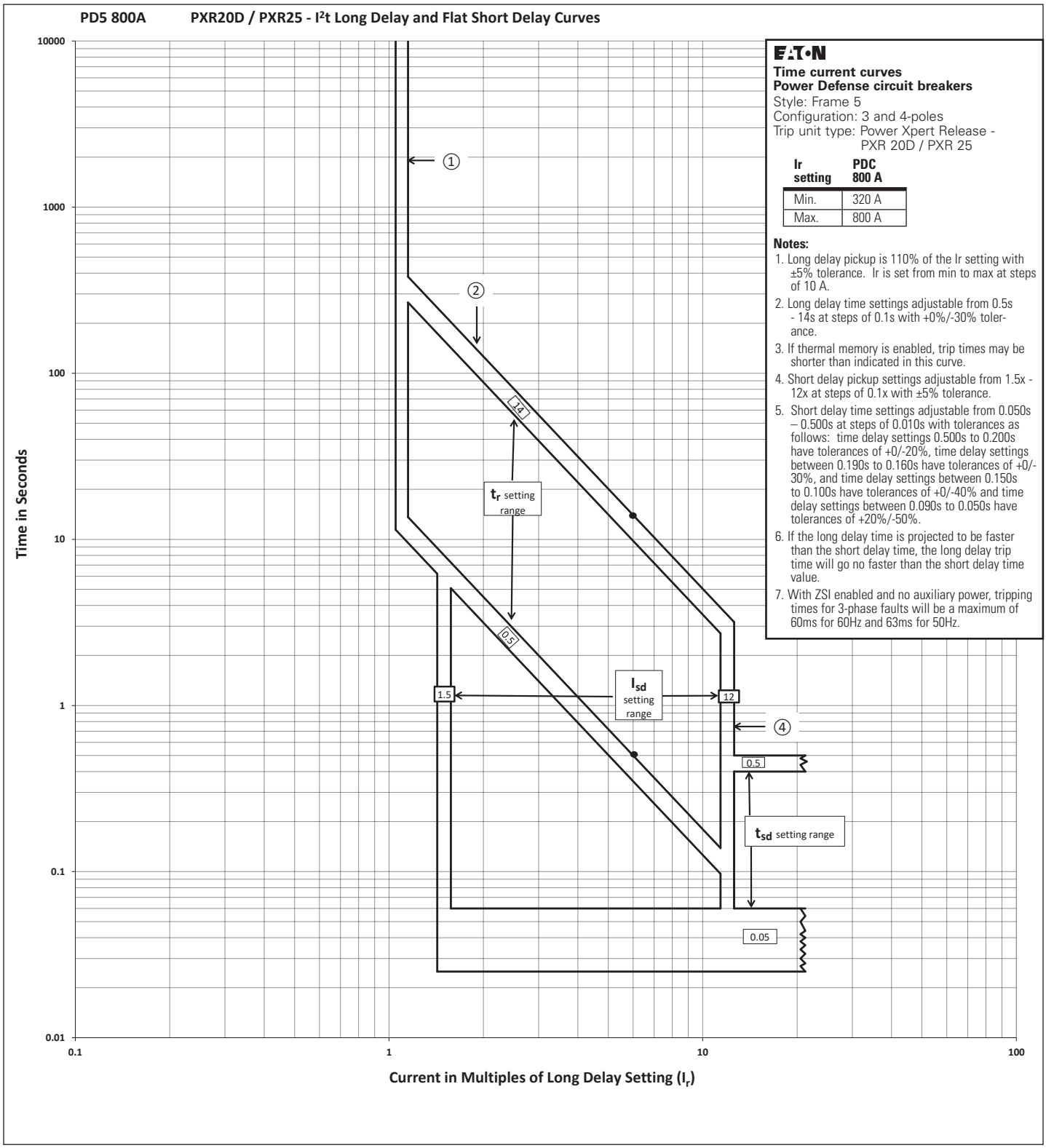


Figure 2. 800A frame PXR 20D / PXR 25 - I²t long delay and flat short delay. **November 2019**

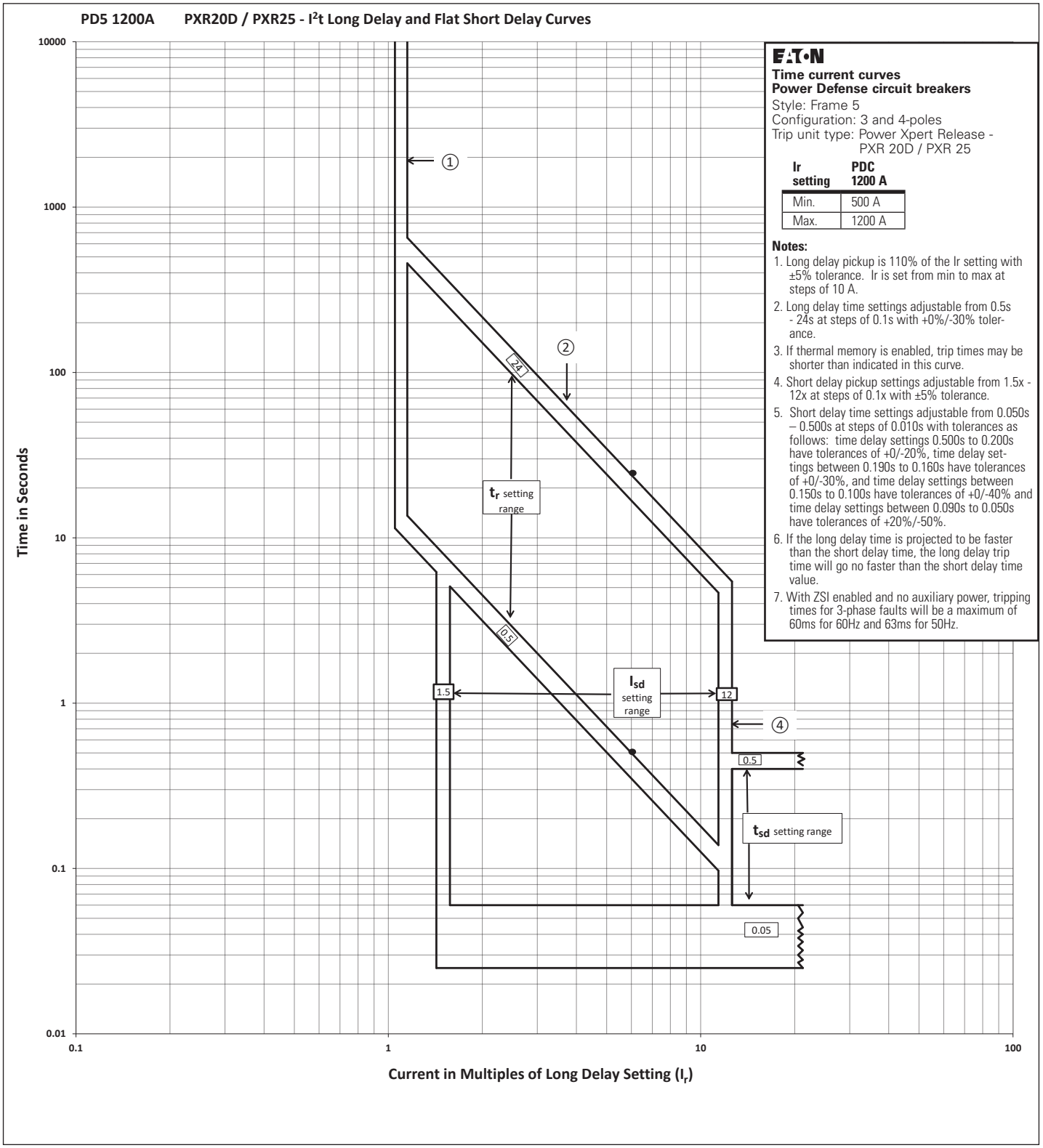


Figure 3. 1200A frame PXR 20D / PXR 25 - I²t long delay and flat short delay. **November 2019**

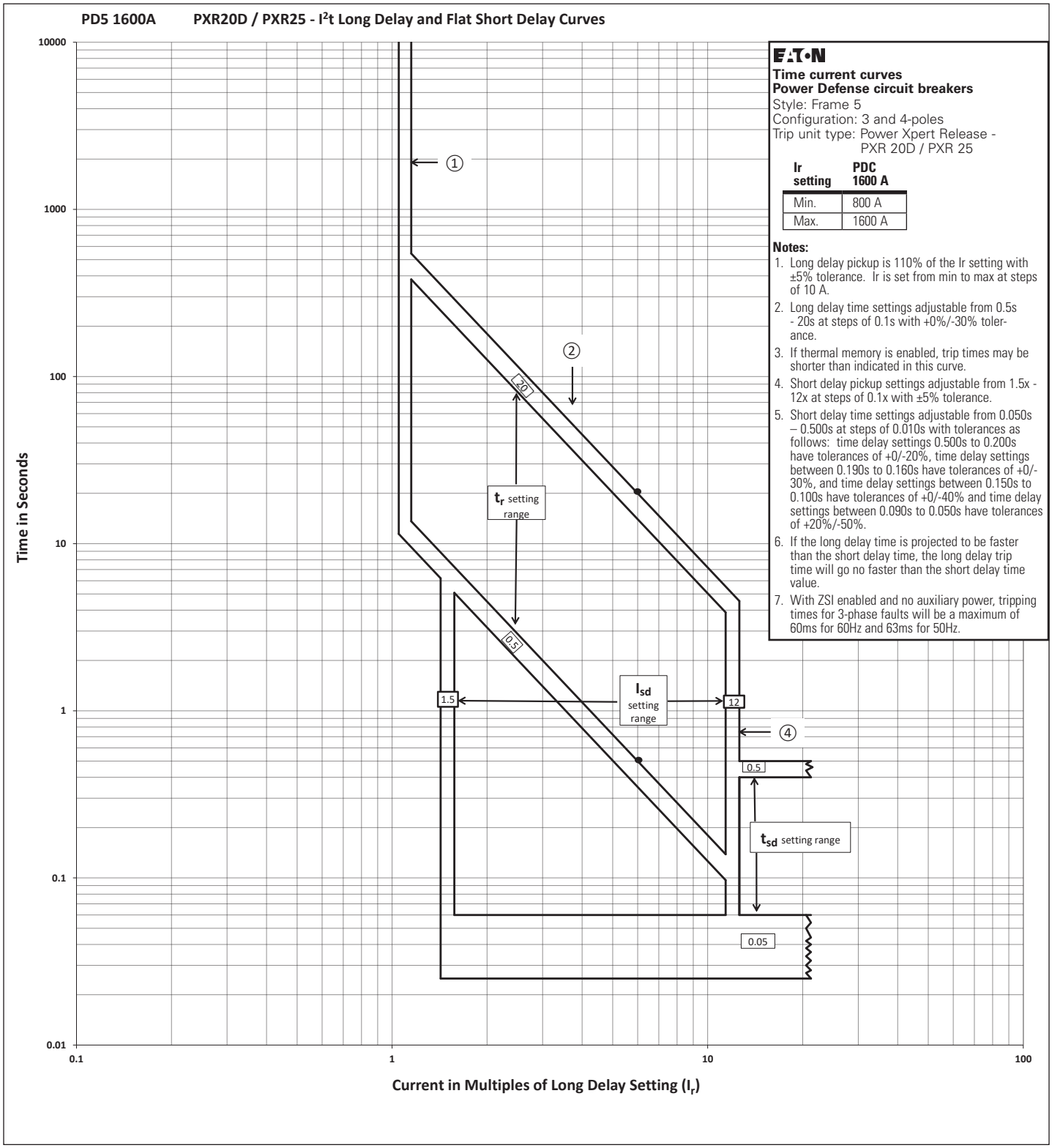


Figure 4. 1600A frame PXR 20D / PXR 25 - I²t long delay and flat short delay. **November 2019**

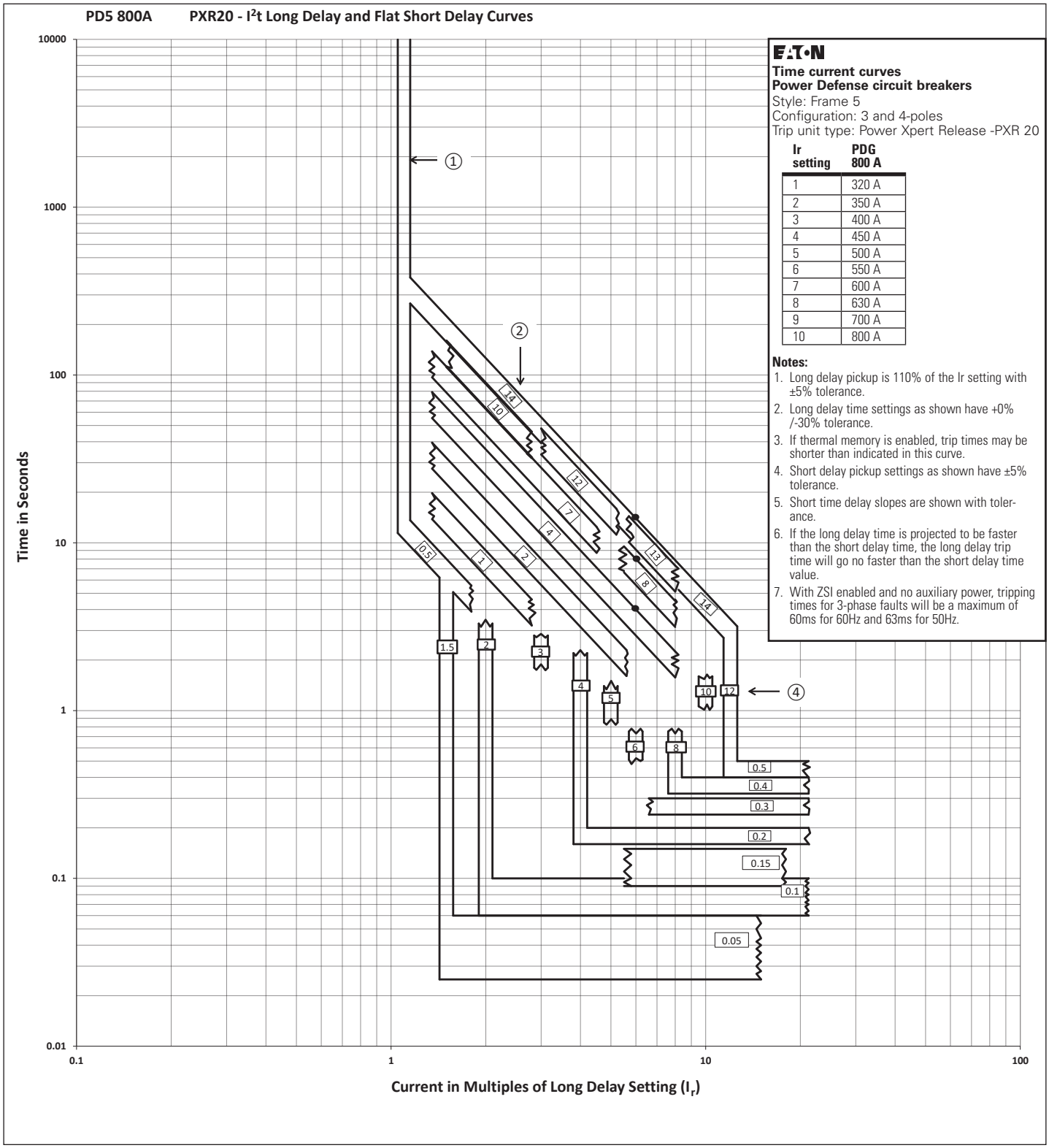


Figure 5. 800A frame PXR 20 - I²t long delay and flat short delay. **November 2019**

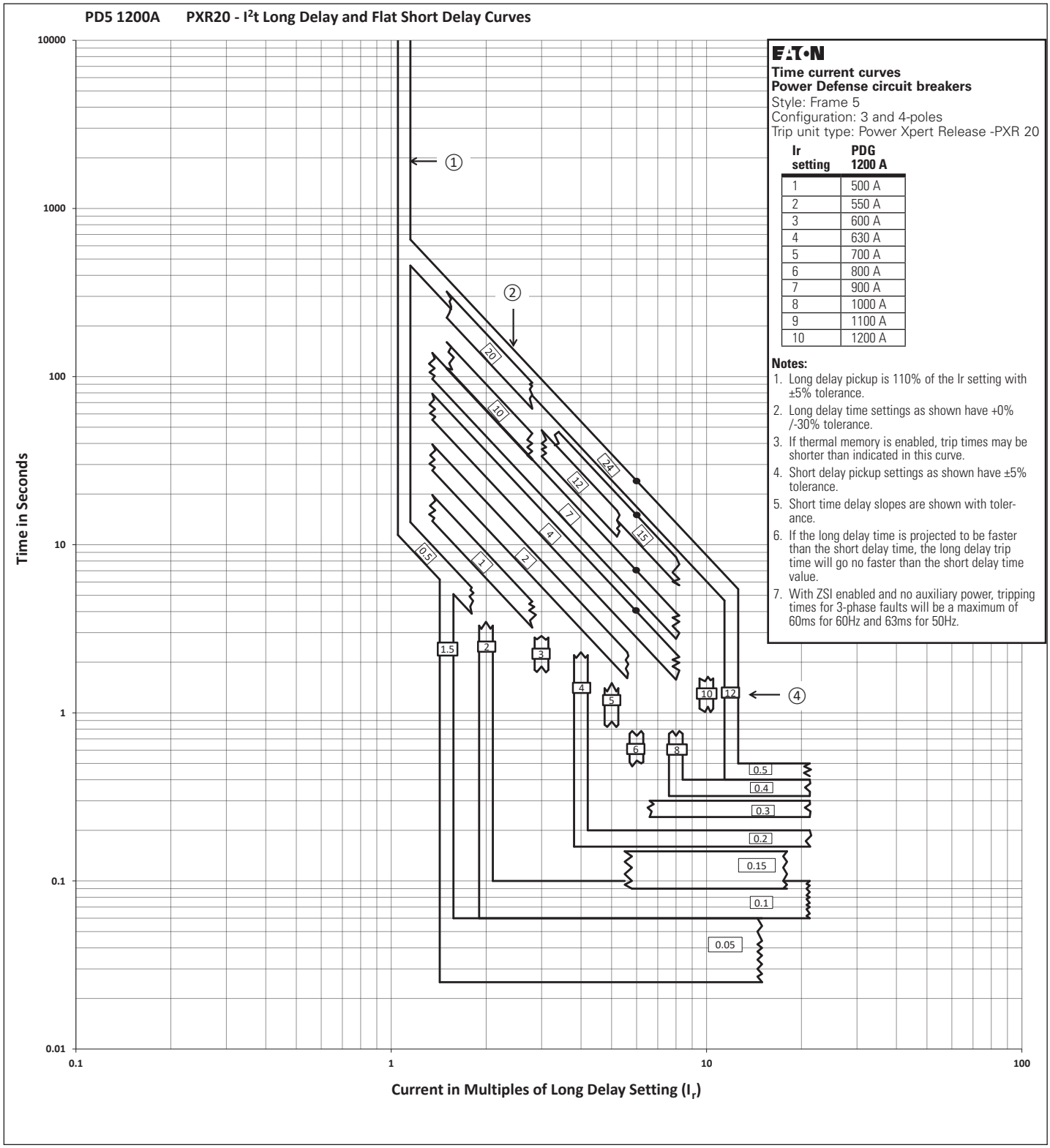


Figure 6. 1200A frame PXR 20 - I²t long delay and flat short delay. **November 2019**

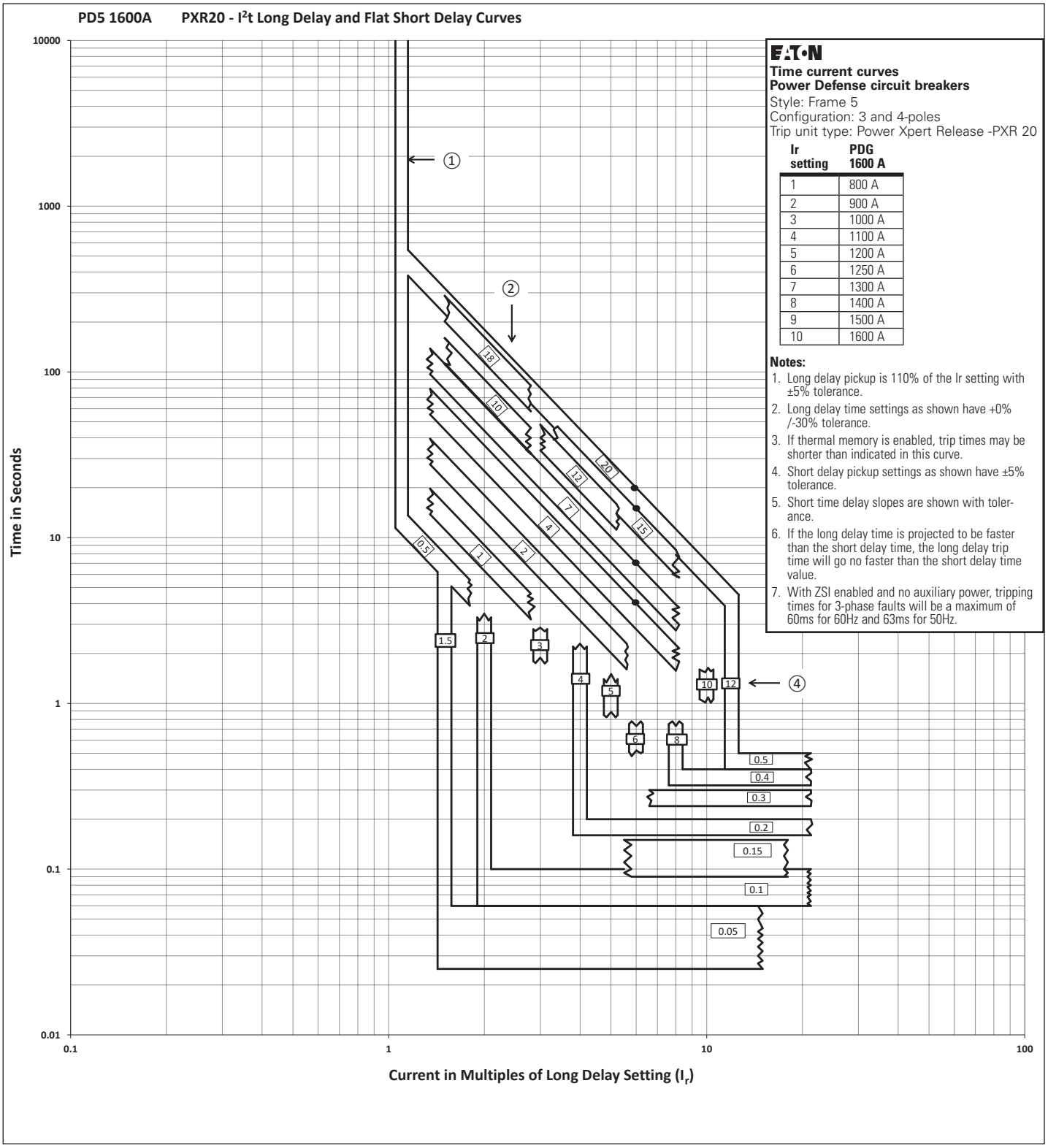


Figure 7. 1600A frame PXR 20 - I²t long delay and flat short delay.

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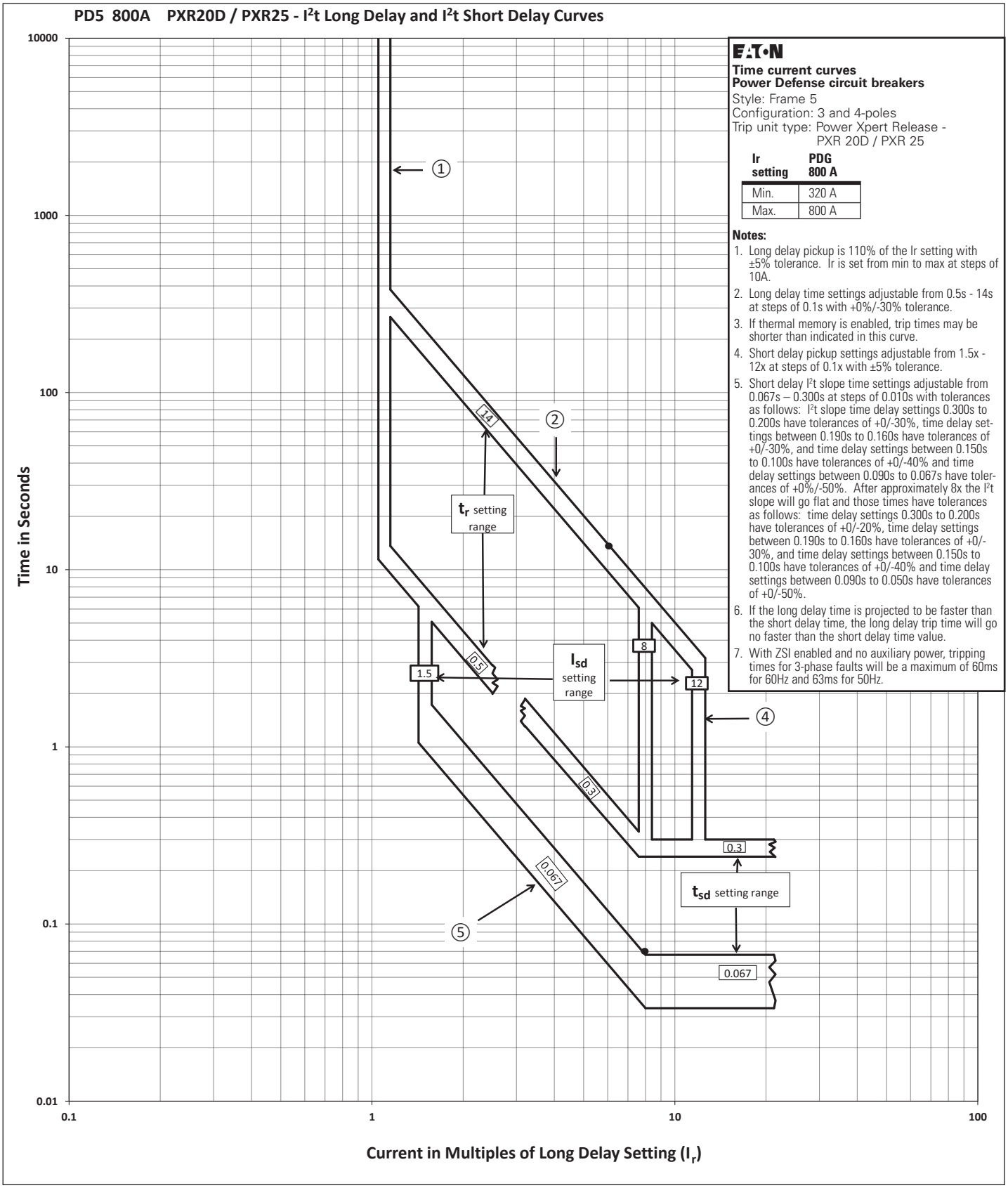

Figure 8. 800A frame PXR 20D / PXR 25 - I²t long delay and I²t short delay. **November 2019**

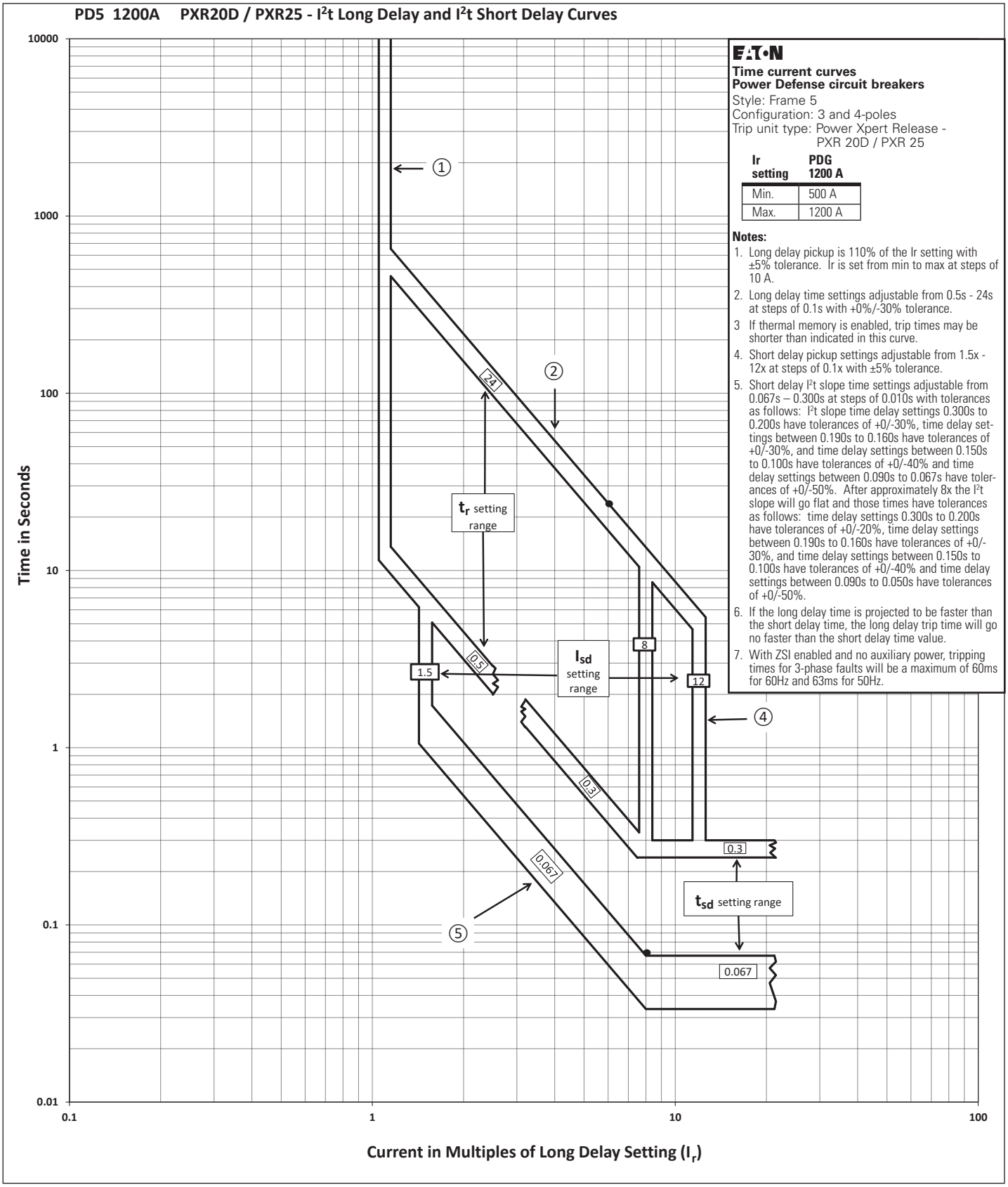

Figure 9. 1200A frame PXR 20D / PXR 25 - I²t long delay and I²t short delay.

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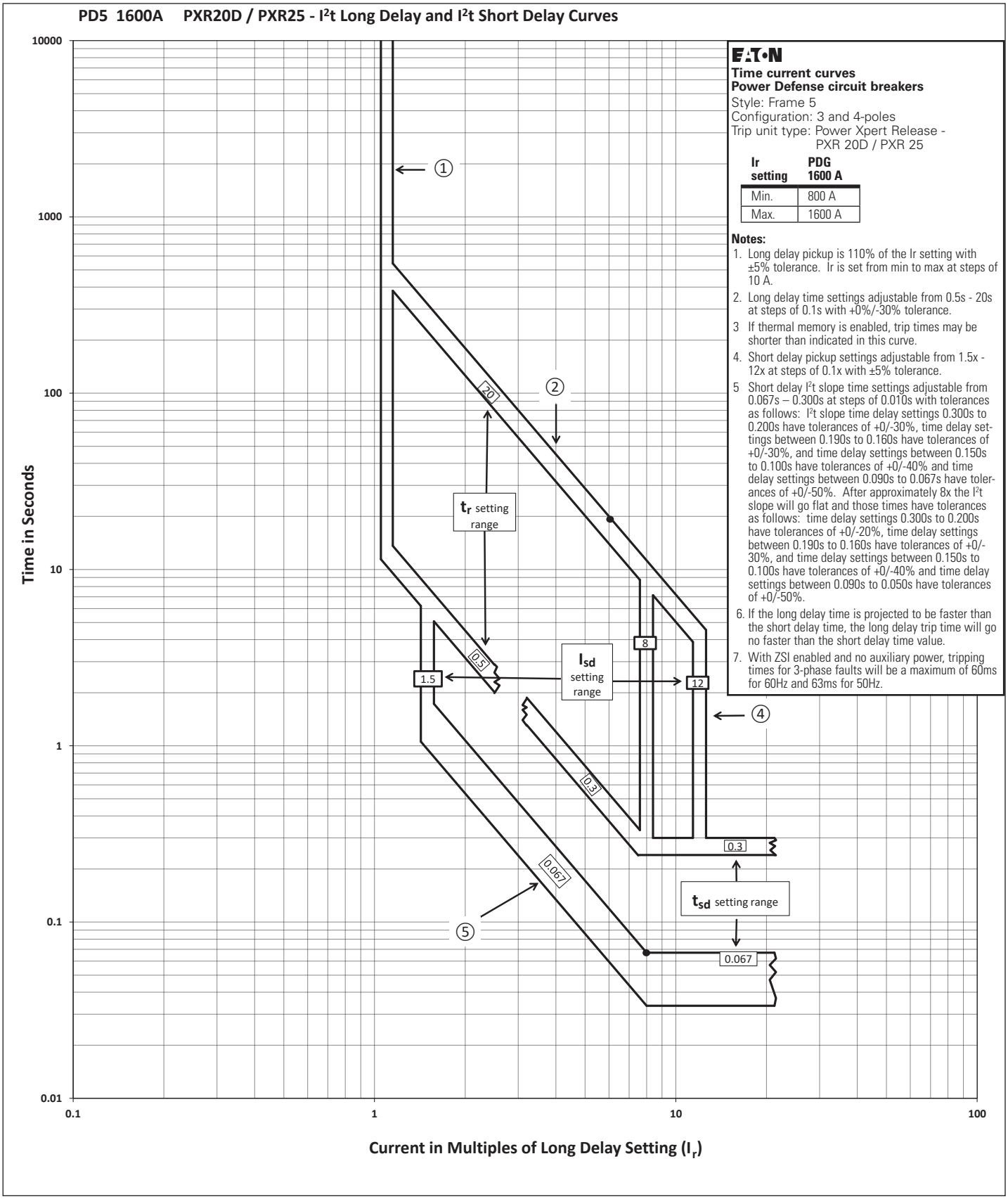

Figure 10. 1600A frame PXR 20D / PXR 25 - I²t long delay and I²t short delay. **November 2019**

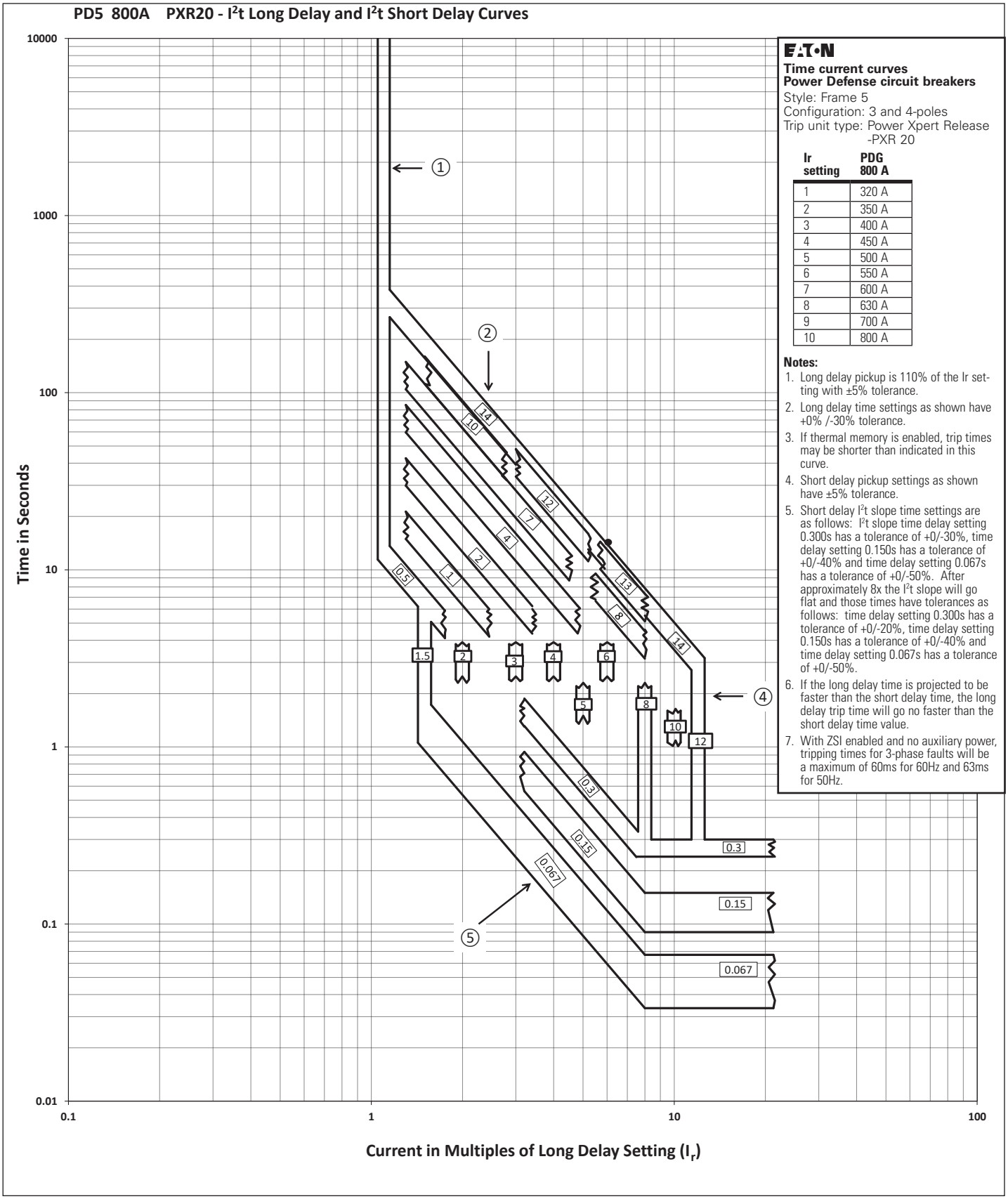

Figure 11. 800A frame PXR 20 I²t long delay and I²t short delay.

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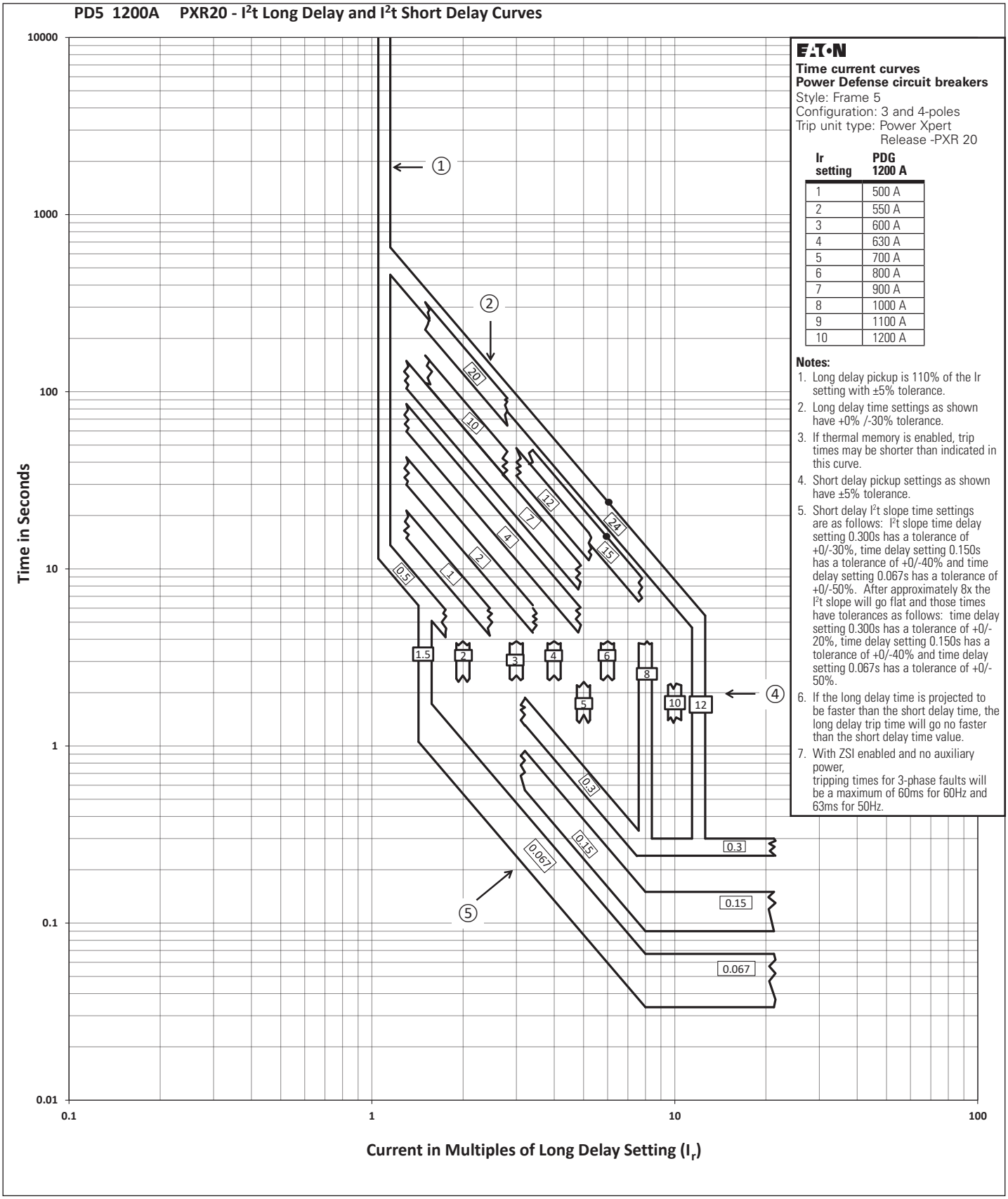

EATON

Time current curves
Power Defense circuit breakers
Style: Frame 5
Configuration: 3 and 4-poles
Trip unit type: Power Xpert Release -PXR 20

Ir setting	PDG 1200 A
1	500 A
2	550 A
3	600 A
4	630 A
5	700 A
6	800 A
7	900 A
8	1000 A
9	1100 A
10	1200 A

Notes:

1. Long delay pickup is 110% of the Ir setting with ±5% tolerance.
2. Long delay time settings as shown have +0% /-30% tolerance.
3. If thermal memory is enabled, trip times may be shorter than indicated in this curve.
4. Short delay pickup settings as shown have ±5% tolerance.
5. Short delay I^2t slope time settings are as follows: I^2t slope time delay setting 0.300s has a tolerance of +0/-30%, time delay setting 0.150s has a tolerance of +0/-40% and time delay setting 0.067s has a tolerance of +0/-50%. After approximately 8x the I^2t slope will go flat and those times have tolerances as follows: time delay setting 0.300s has a tolerance of +0/-20%, time delay setting 0.150s has a tolerance of +0/-40% and time delay setting 0.067s has a tolerance of +0/-50%.
6. If the long delay time is projected to be faster than the short delay time, the long delay trip time will go no faster than the short delay time value.
7. With ZSI enabled and no auxiliary power, tripping times for 3-phase faults will be a maximum of 60ms for 60Hz and 63ms for 50Hz.

Figure 12. 1200A frame PXR 20 I^2t long delay and I^2t short delay. **November 2019**

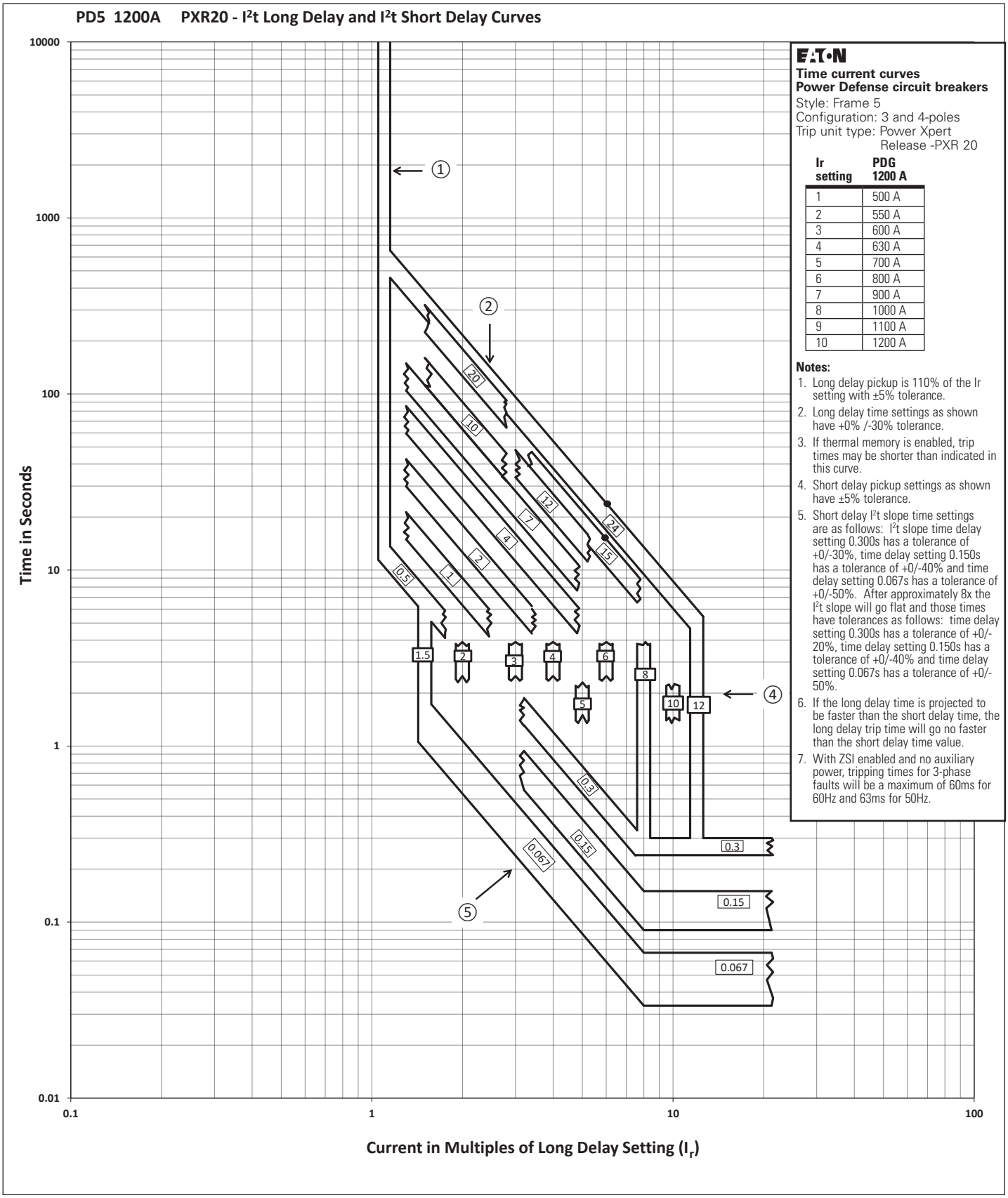

Figure 13. 1600A frame PXR 20 I²t long delay and I²t short delay. **November 2019**

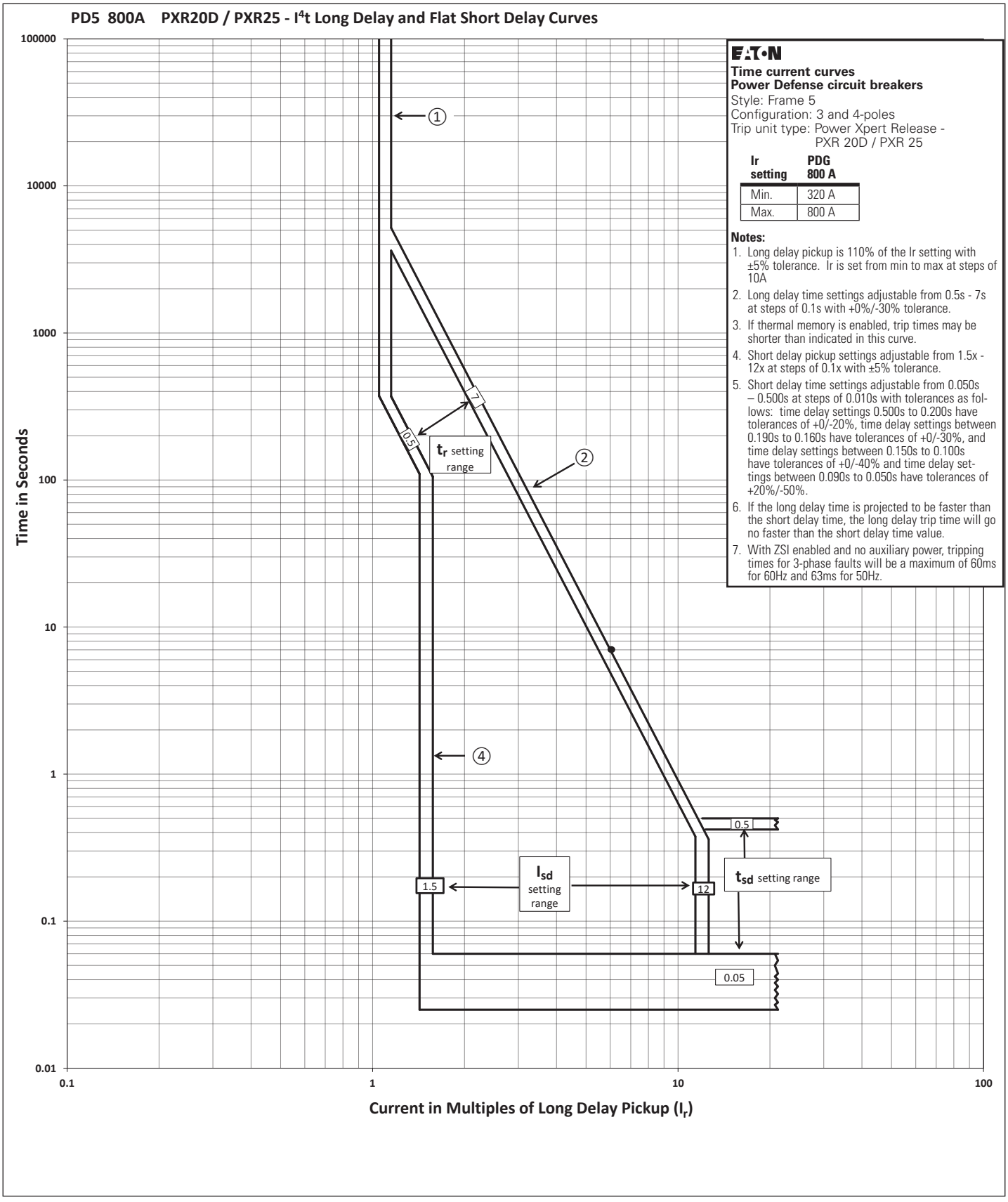

Figure 14. 800A frame PXR 20D / PXR 25 - I⁴t long delay and flat short delay. **November 2019**

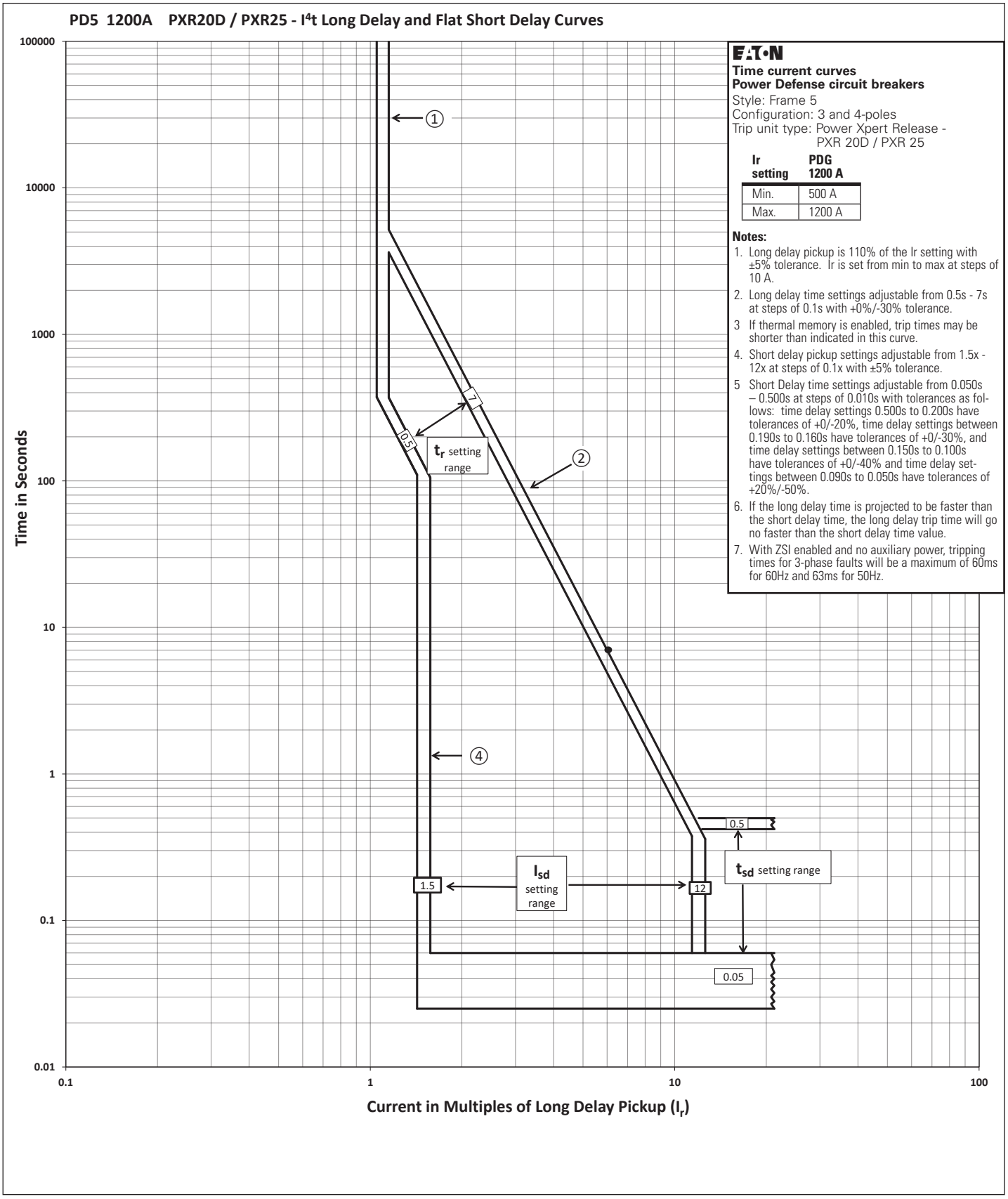

Figure 15. 1200A frame PXR 20D / PXR 25 - I⁴t long delay and flat short delay. **November 2019**

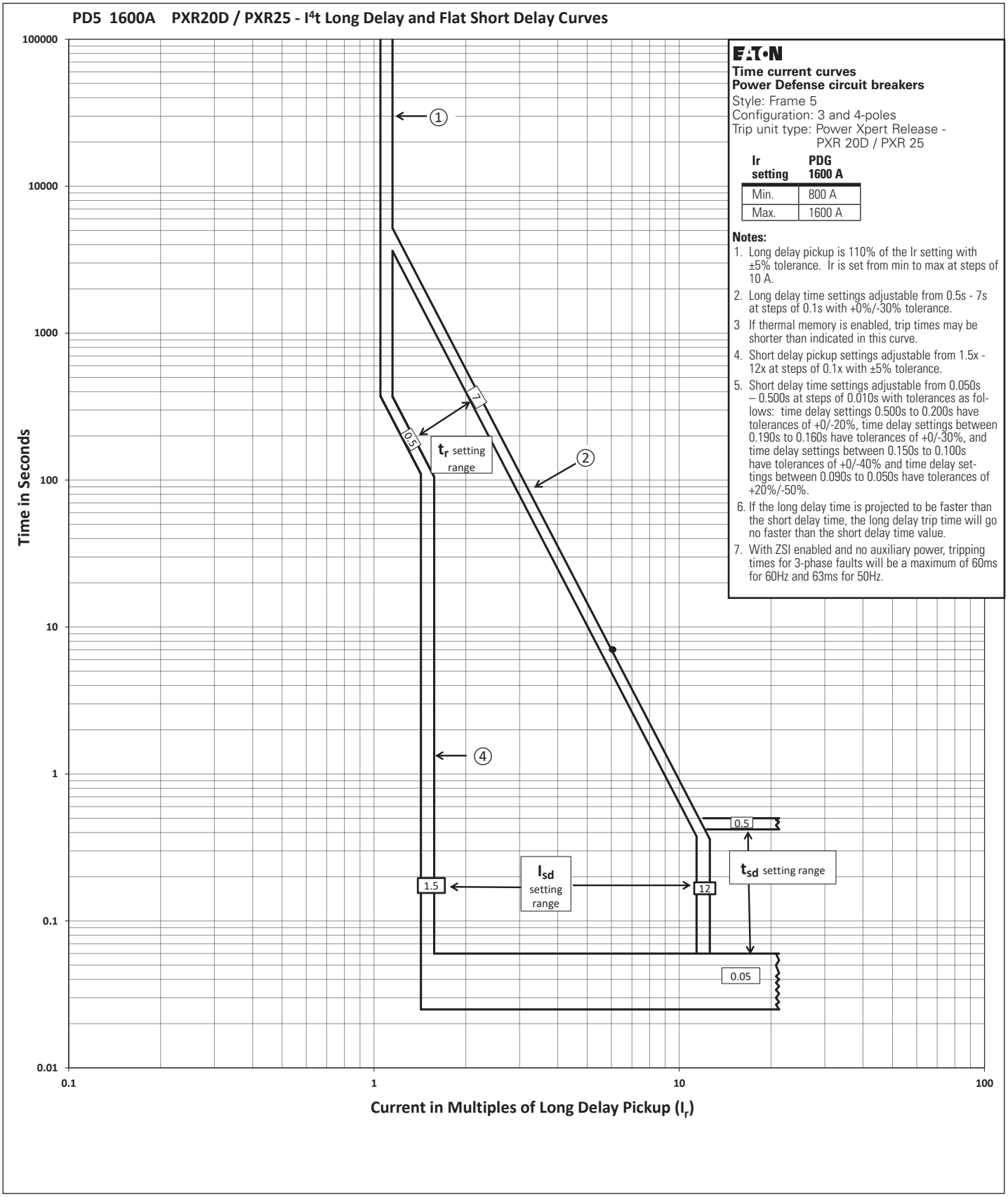

Figure 16. 1600A frame PXR 20D / PXR 25 - I⁴t long delay and flat short delay. **November 2019**

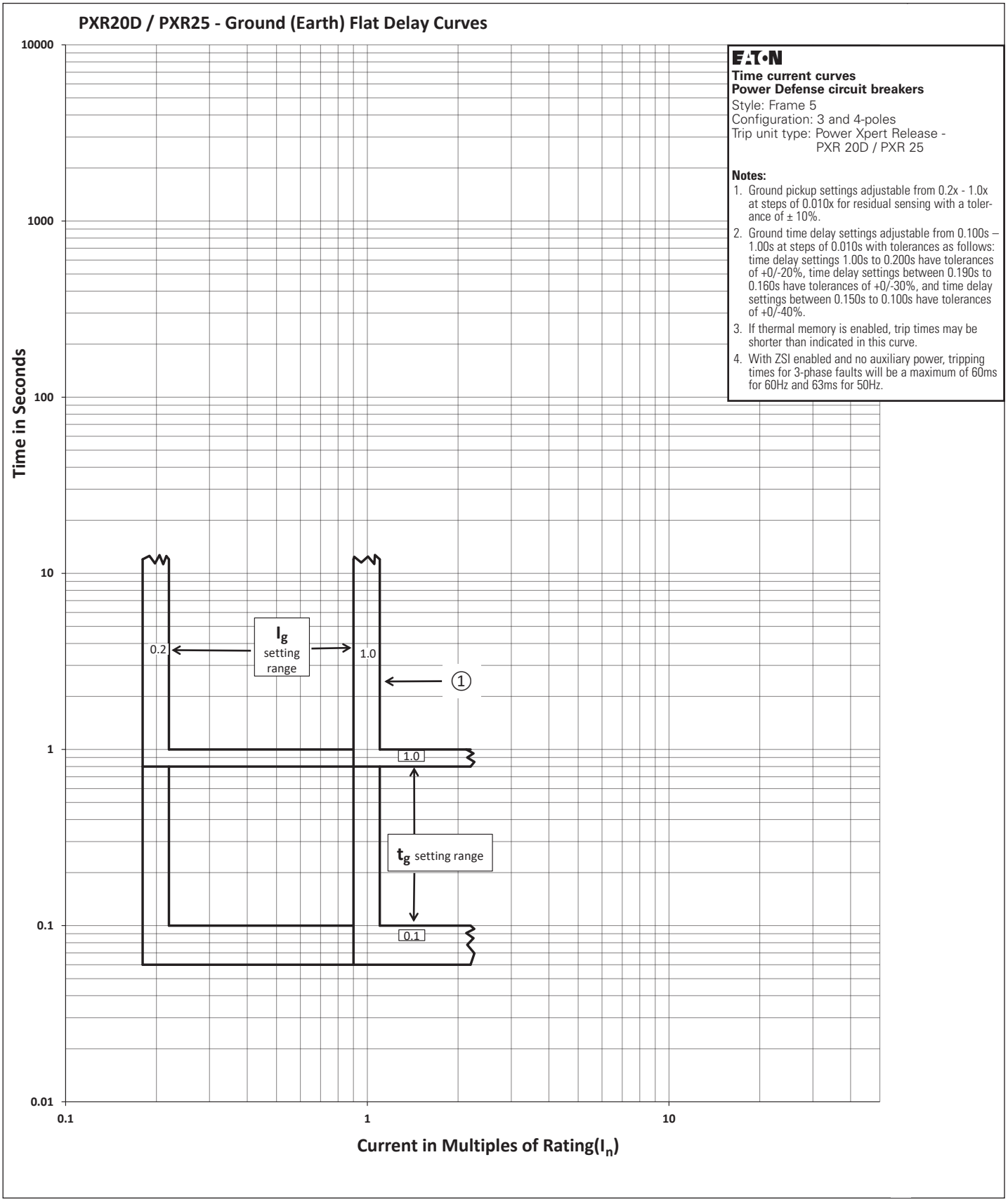

Figure 17. PXR 20D / PXR 25 ground (earth) flat delay.

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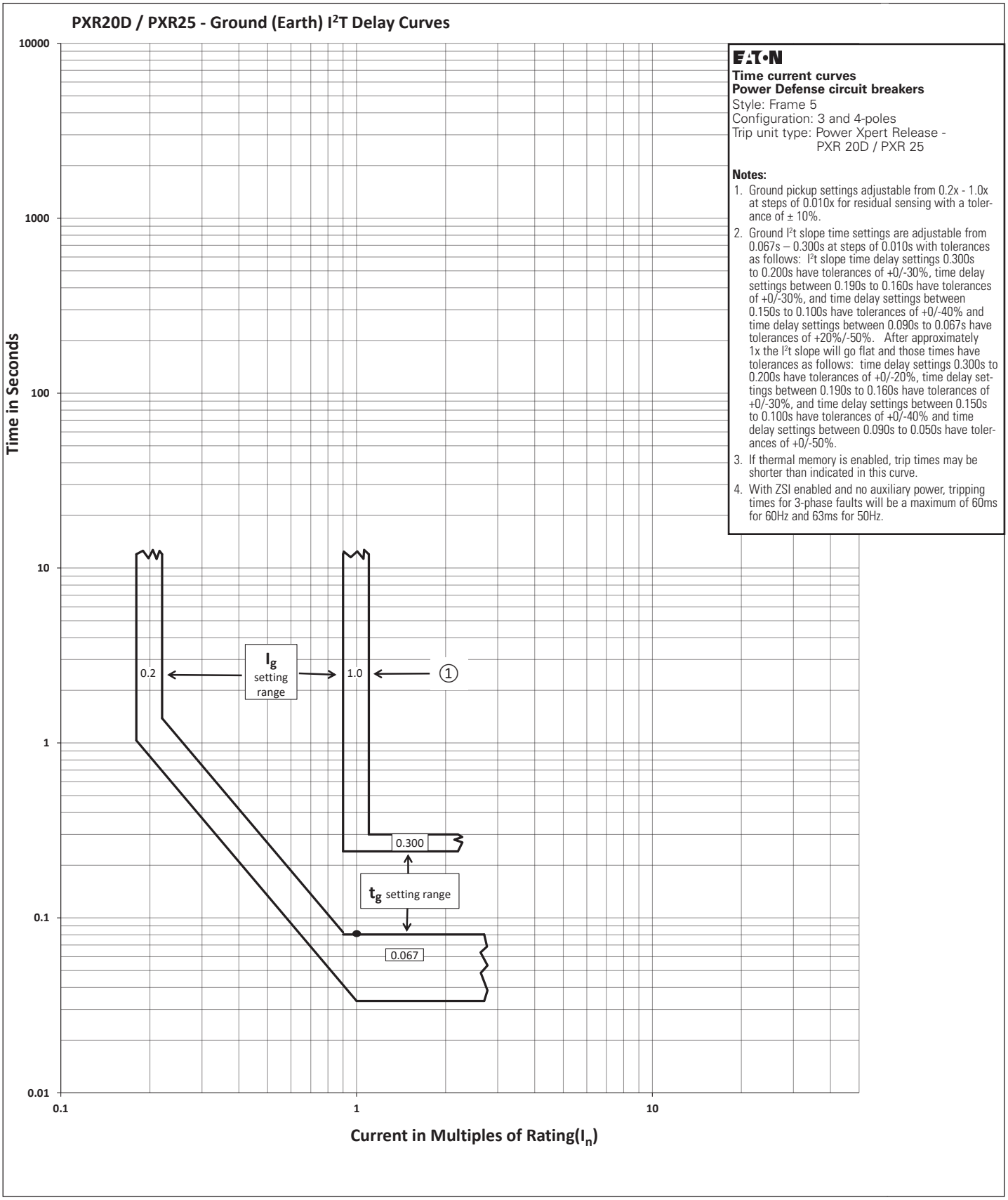

Figure 18. PXR 20D / PXR 25 - ground (earth) I²t delay. **November 2019**

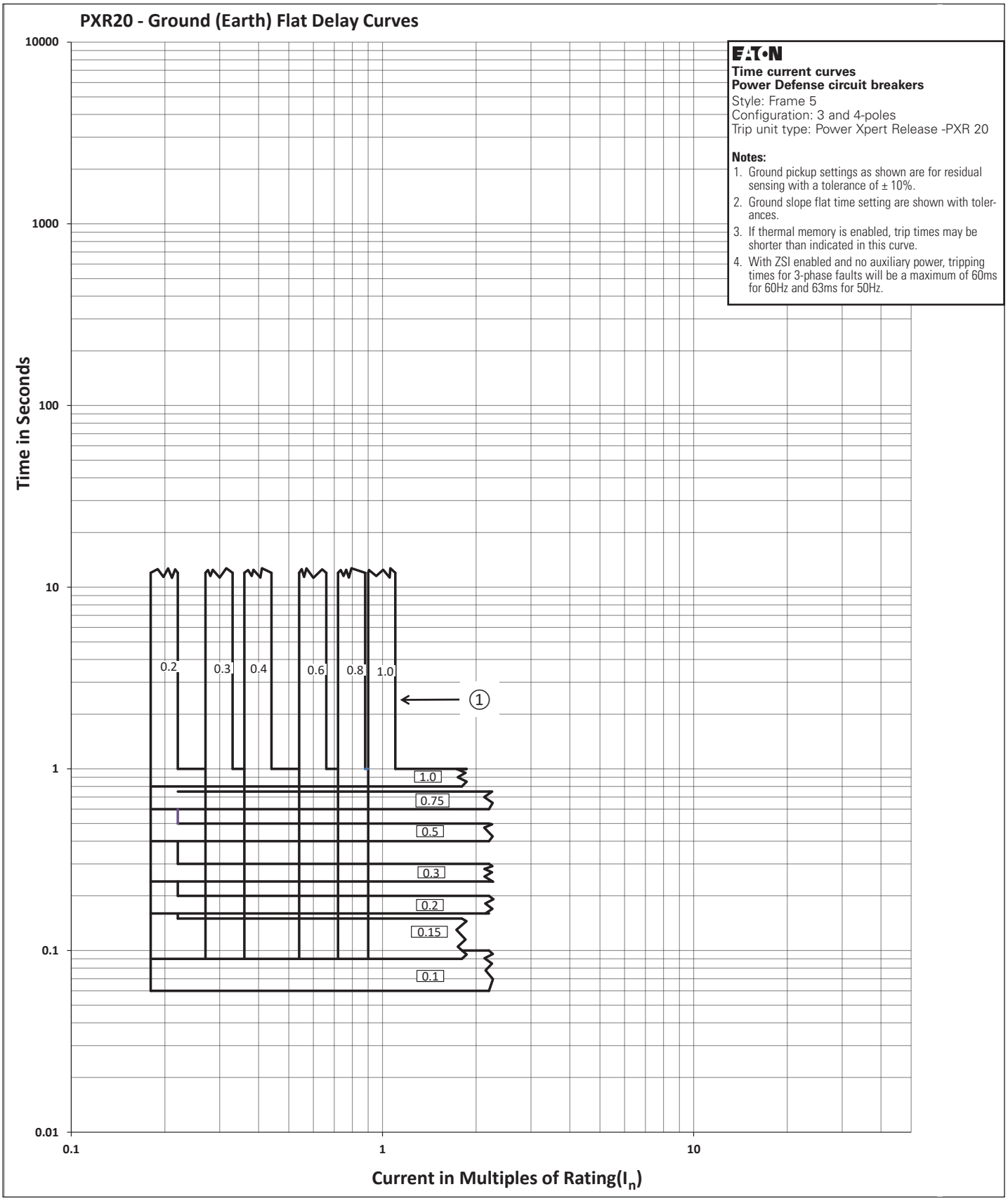

Figure 19. PXR 20 - ground (earth) flat delay.

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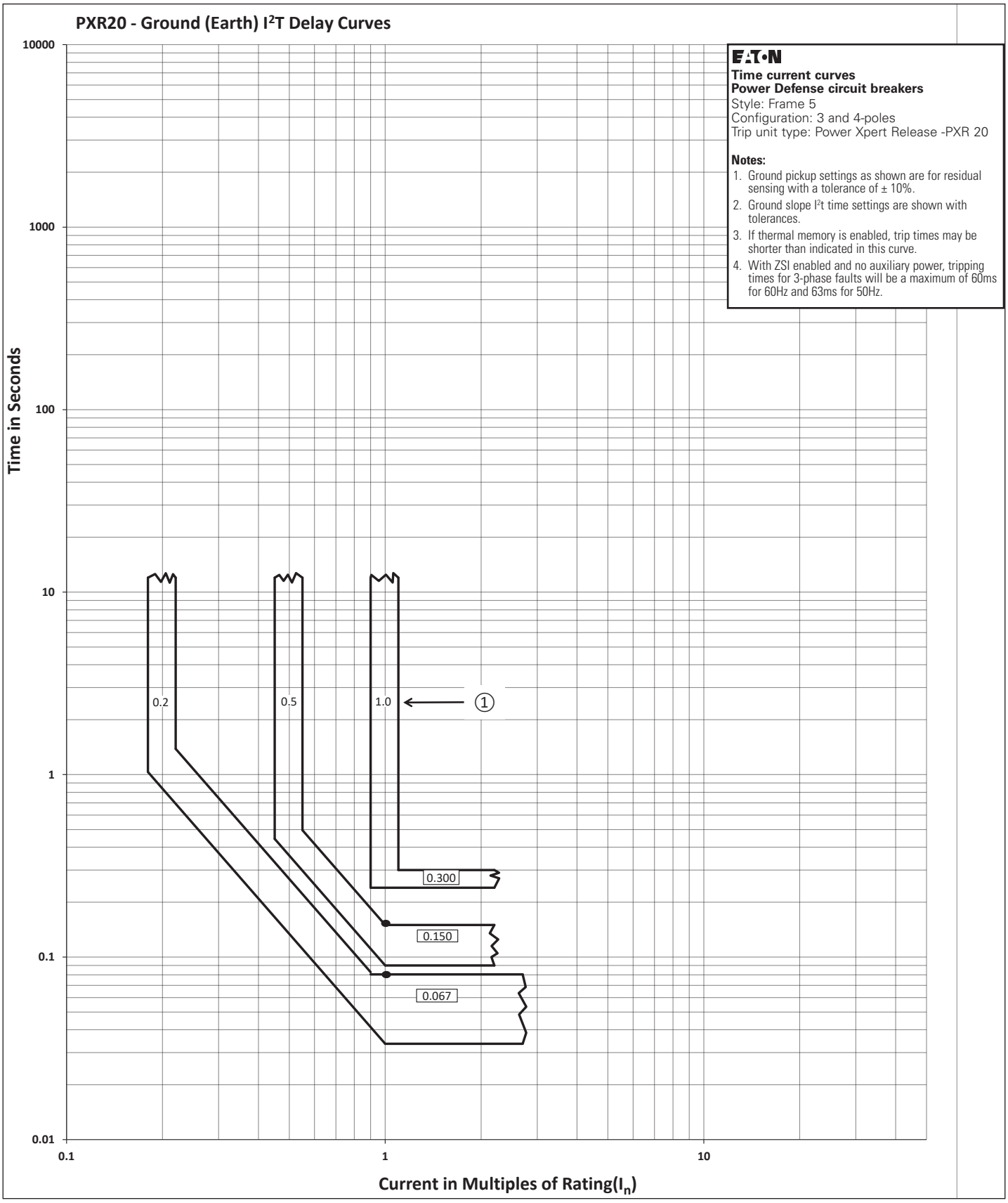

Figure 20. PXR 20 - ground (earth) I²t delay.

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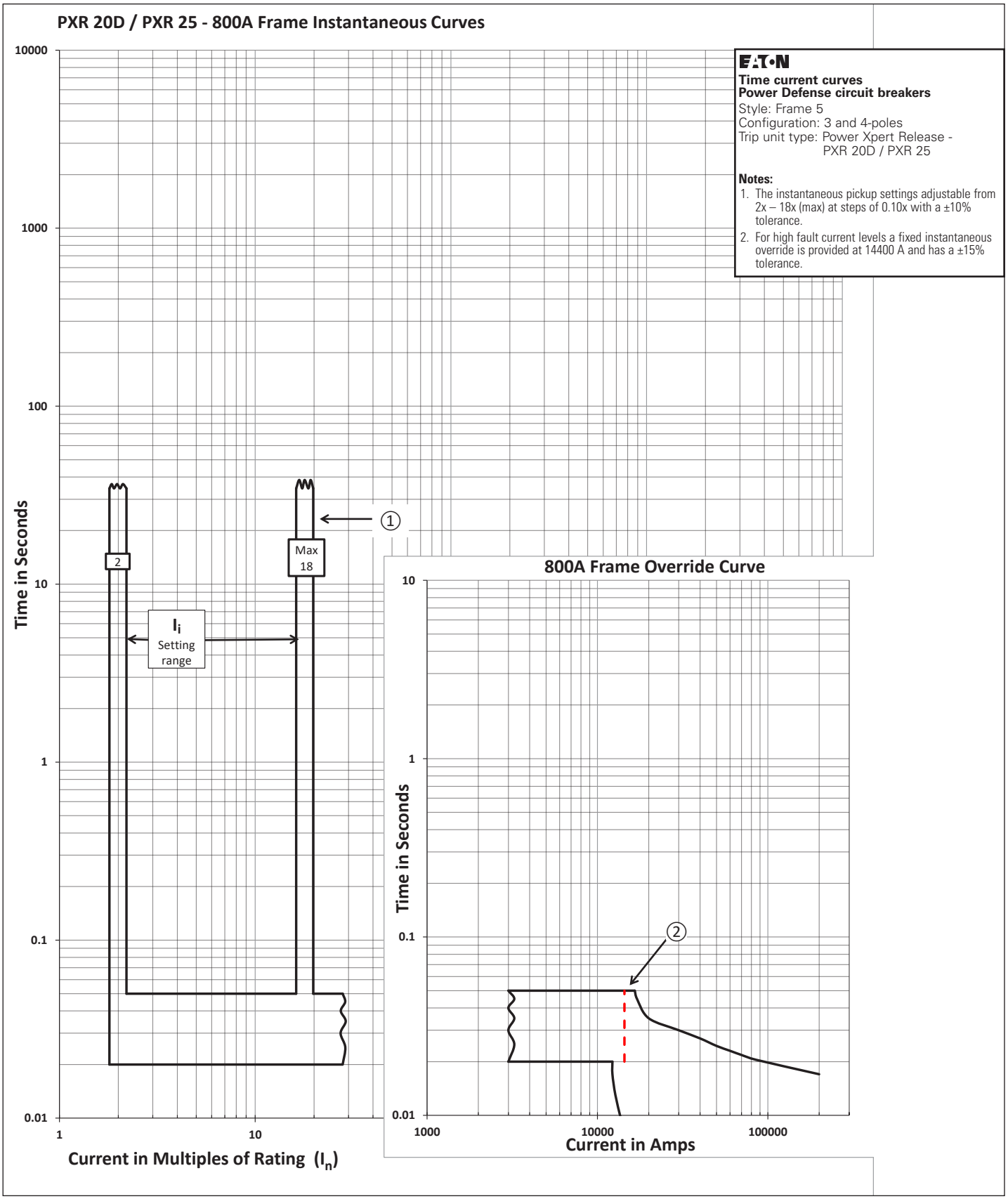

Figure 21. 800A frame PXR 20D / PXR 25 - instantaneous and override.

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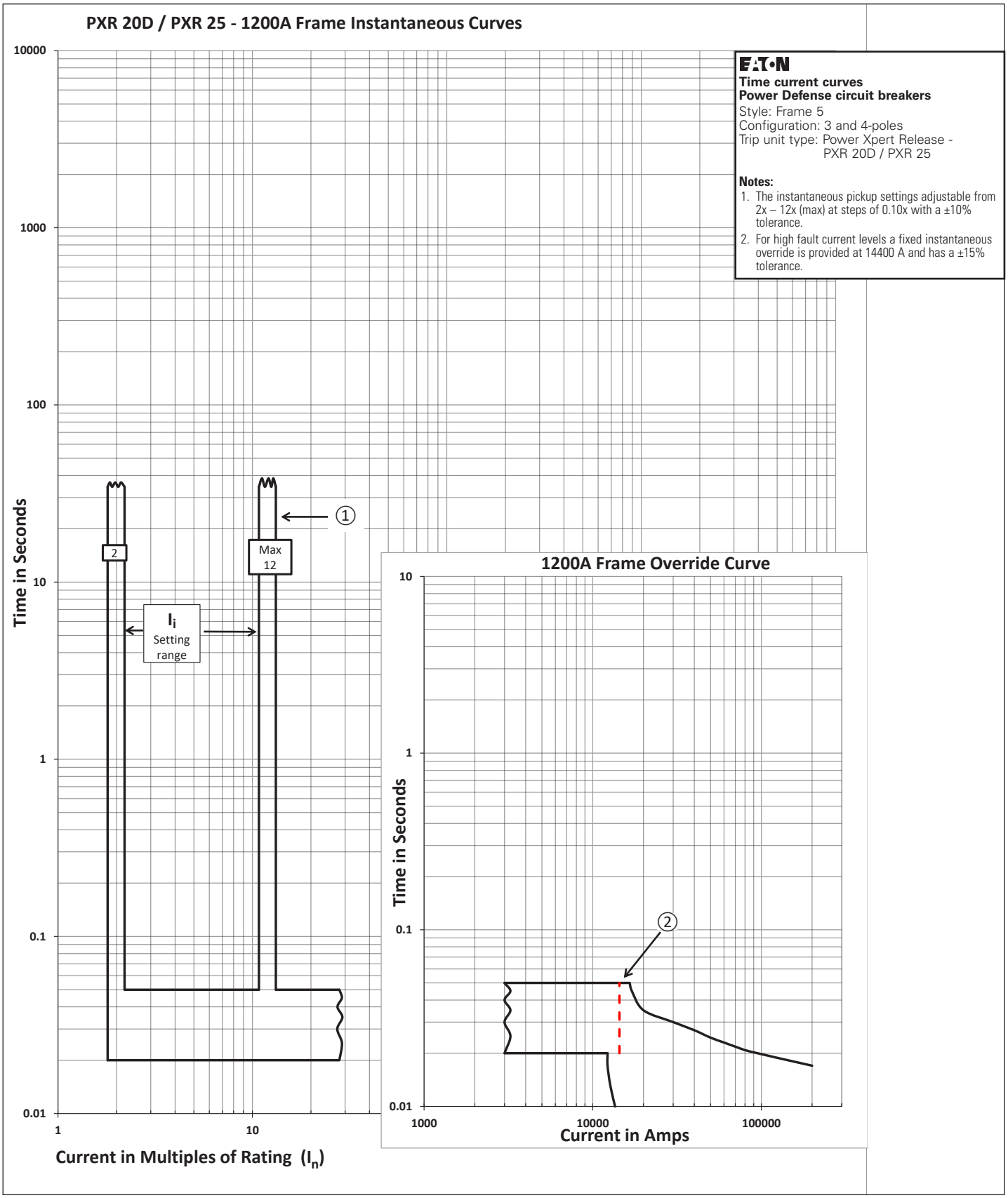

Figure 22. 1200A frame PXR 20D / PXR 25 - instantaneous and override.

November 2019

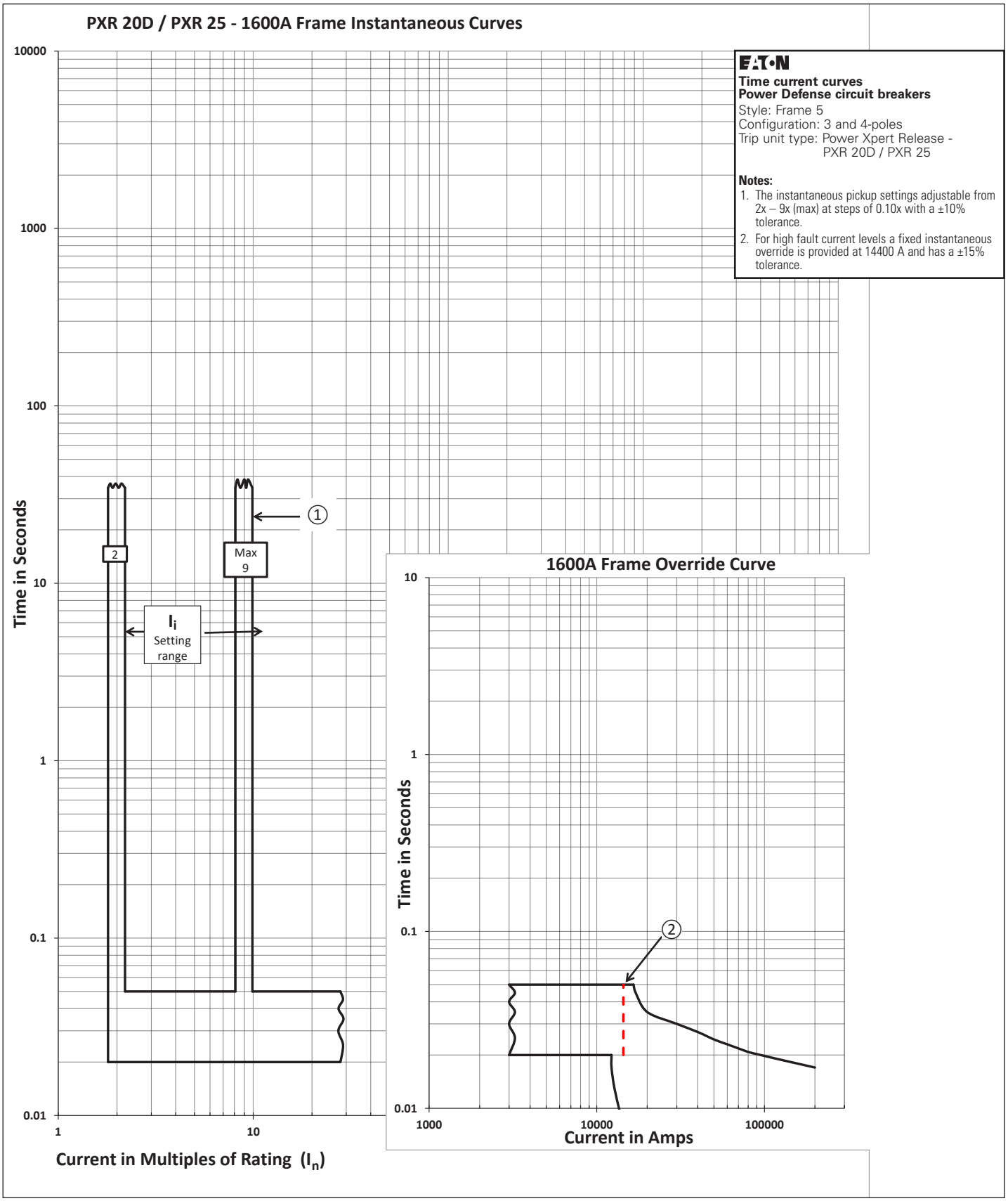

Figure 23. 1600A frame PXR 20D / PXR 25 - instantaneous and override.

November 2019

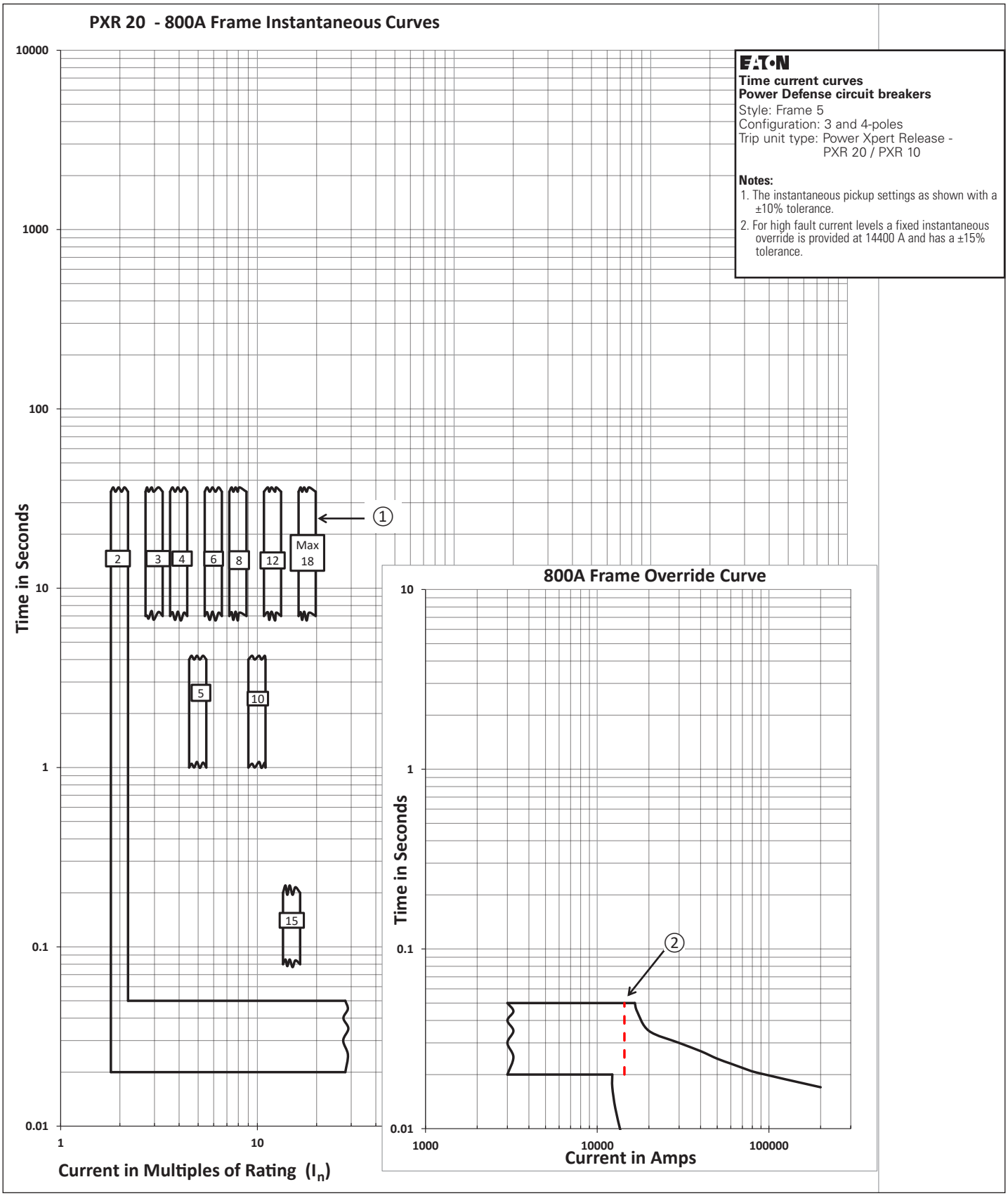

Figure 24. 800A frame PXR 20 - instantaneous and override.

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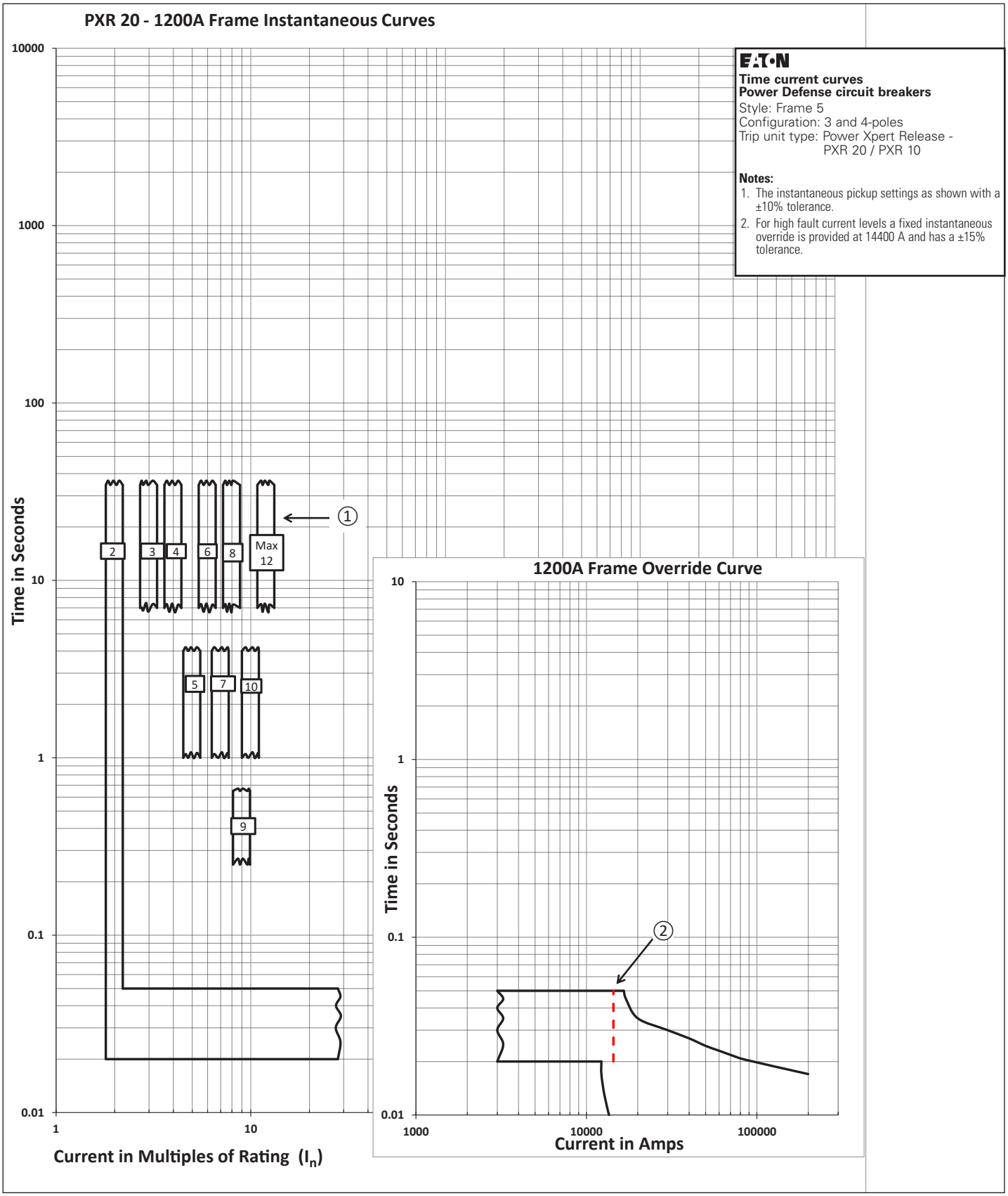

Figure 25. 1200A frame PXR 20 - instantaneous and override.

November 2019

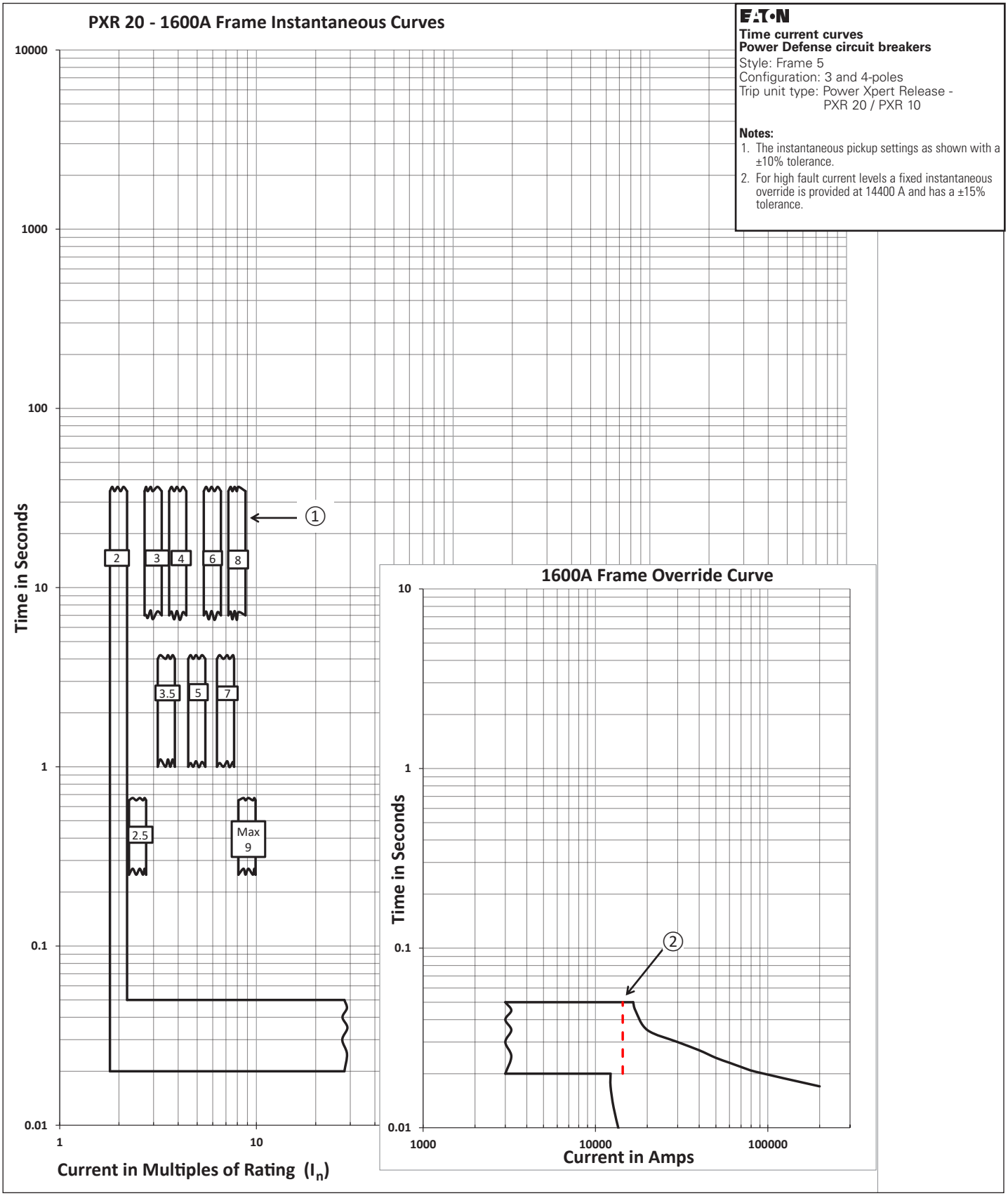

Figure 26. 1600A frame PXR 20 - instantaneous and override.

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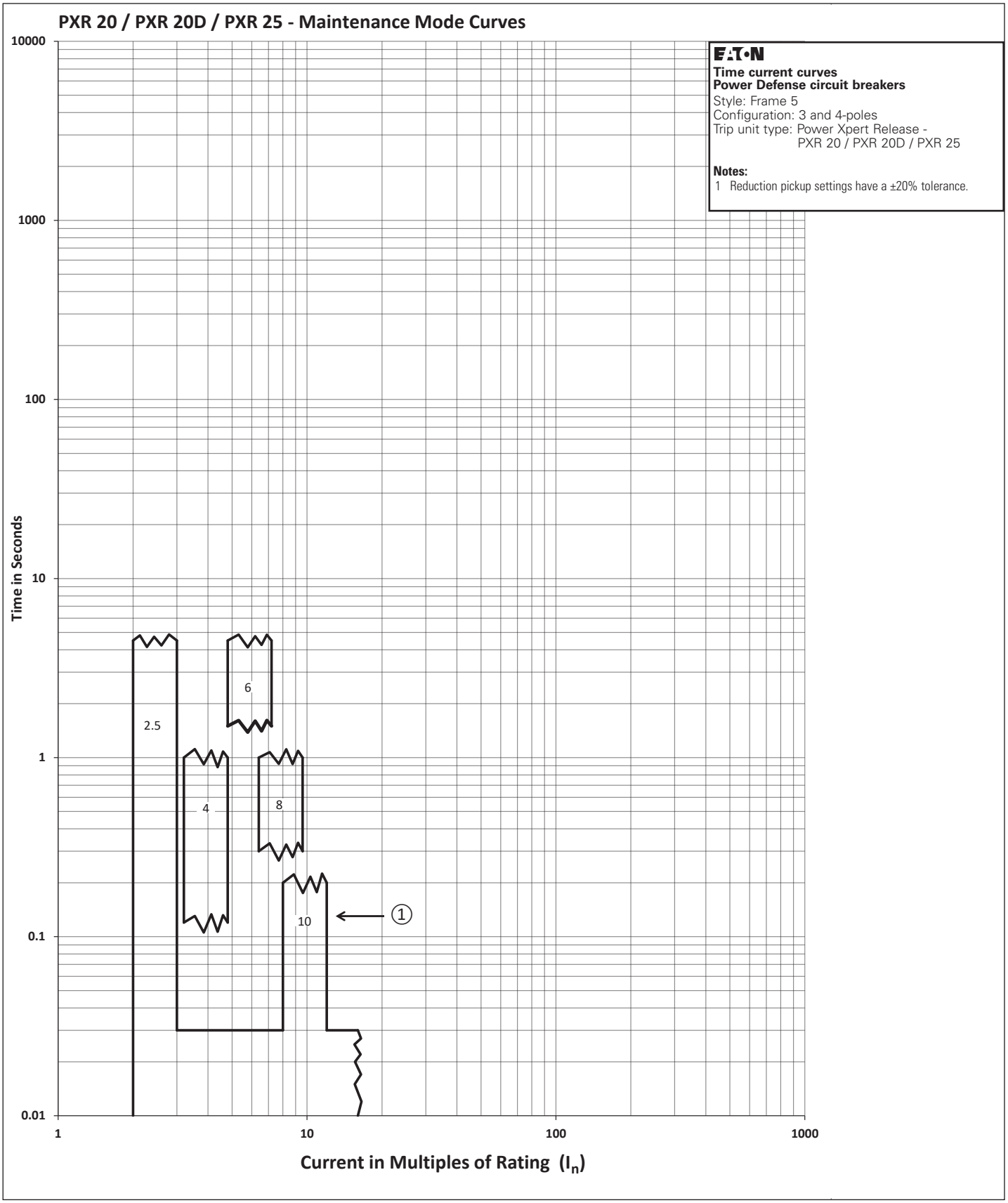

Figure 27. PXR 20 / PXR 20D / PXR 25 - maintenance mode.

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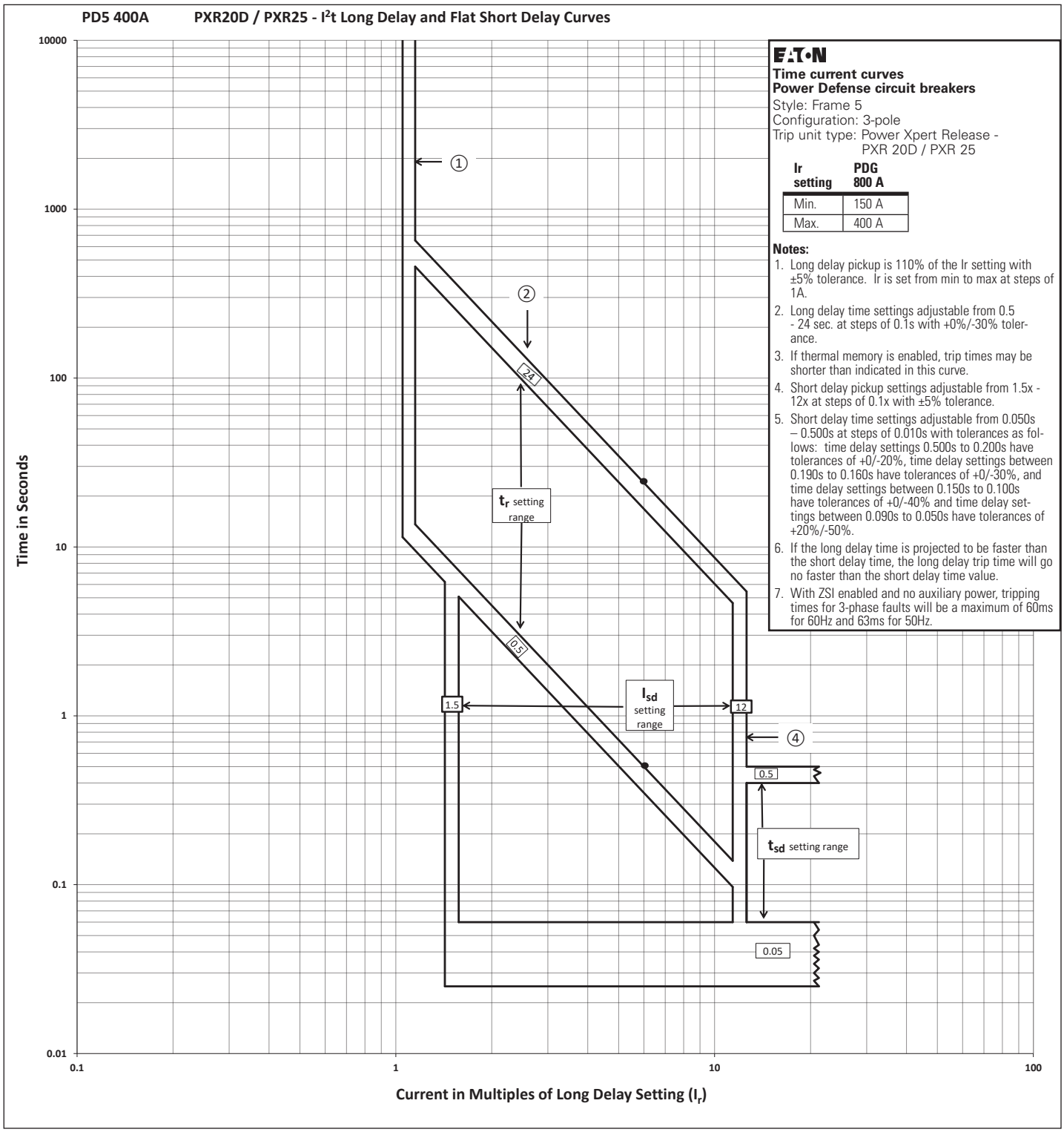

Figure 28. 400A frame PXR 20D / PXR 25 - I²t long delay and flat short delay. **November 2019**

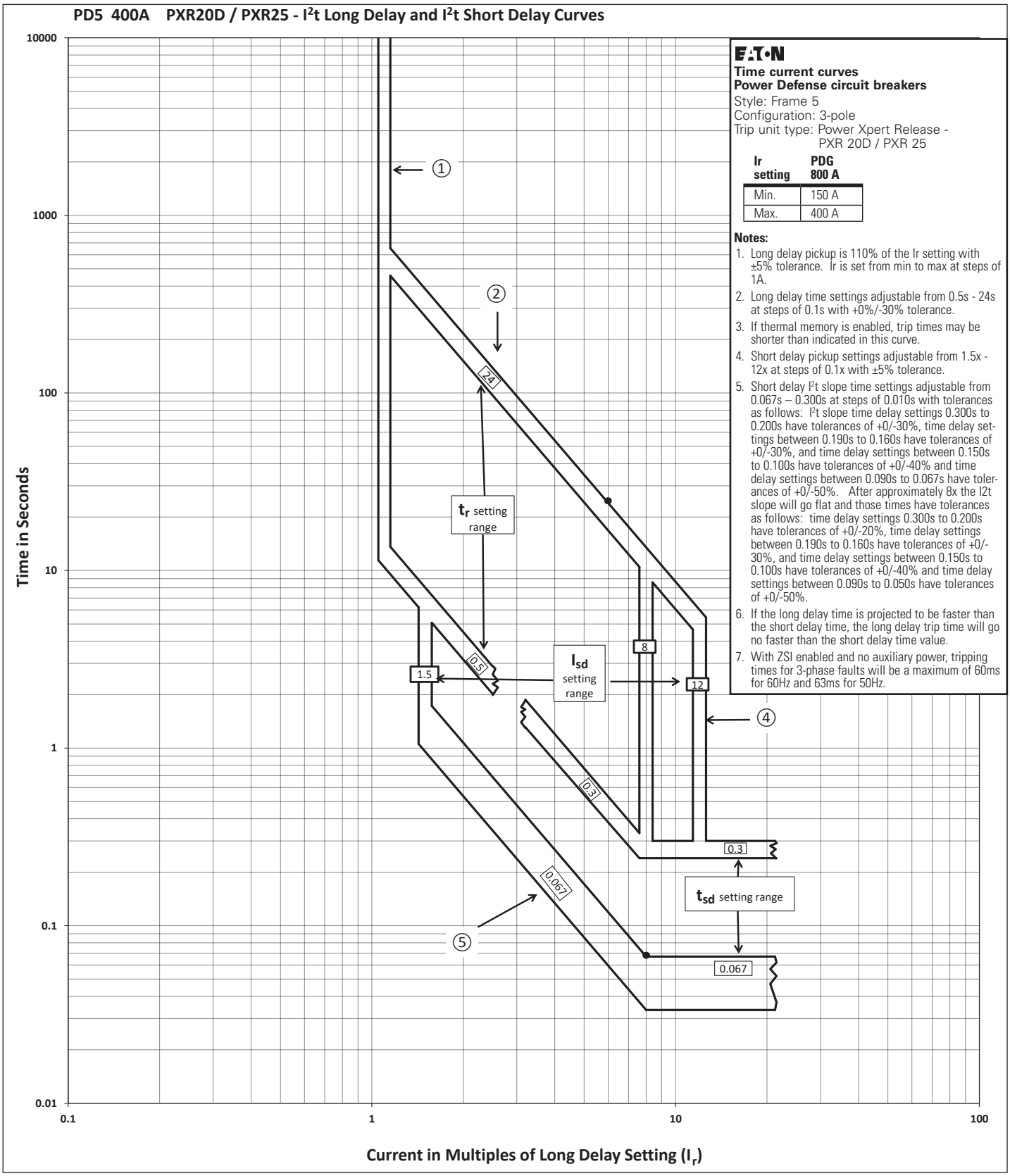

Figure 29. 400A frame PXR 20D / PXR 25 - I²t long delay and I²t short delay. **November 2019**

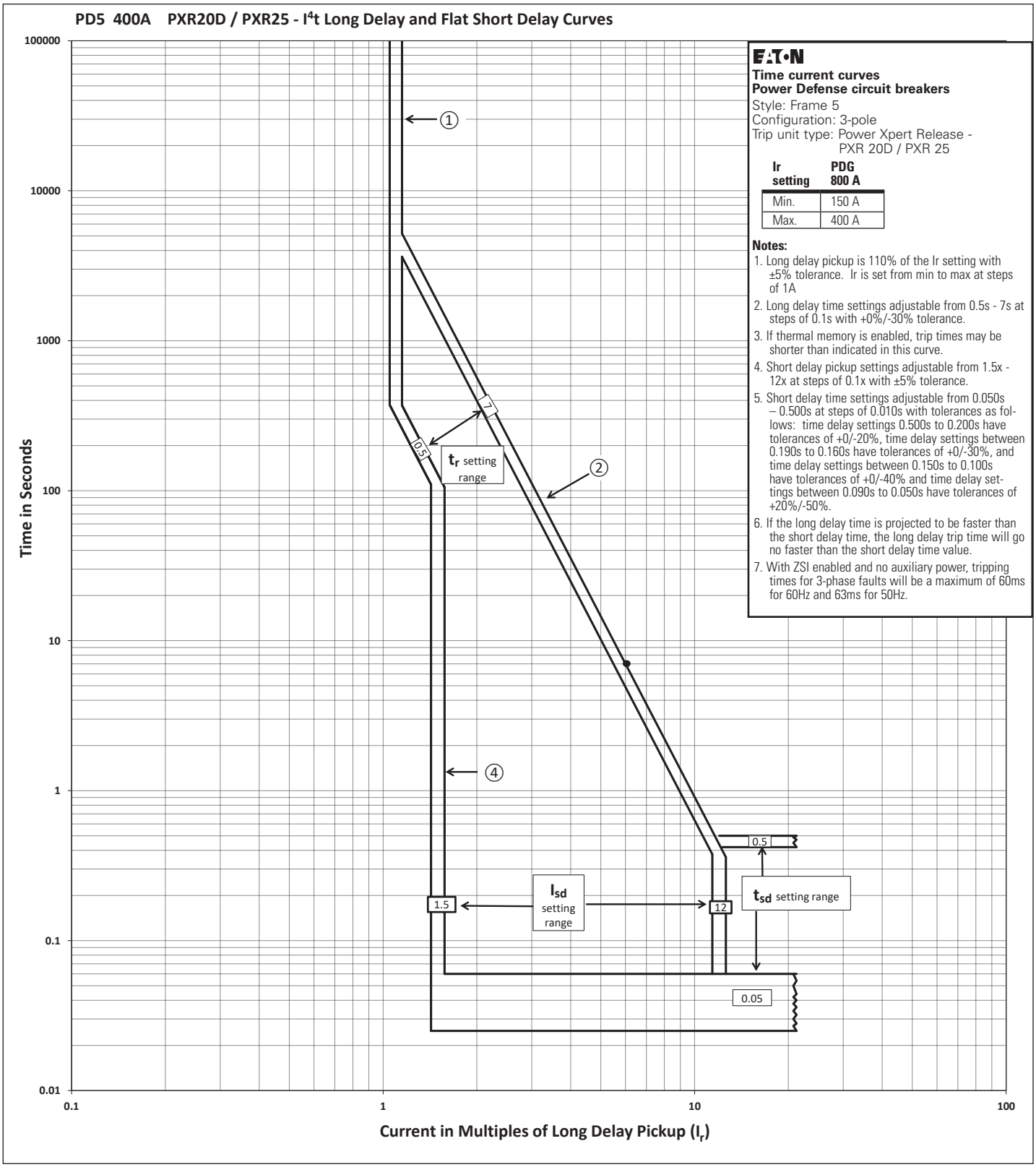

Figure 30. 400A frame PXR 20D / PXR 25 - I⁴t long delay and flat short delay. **November 2019**

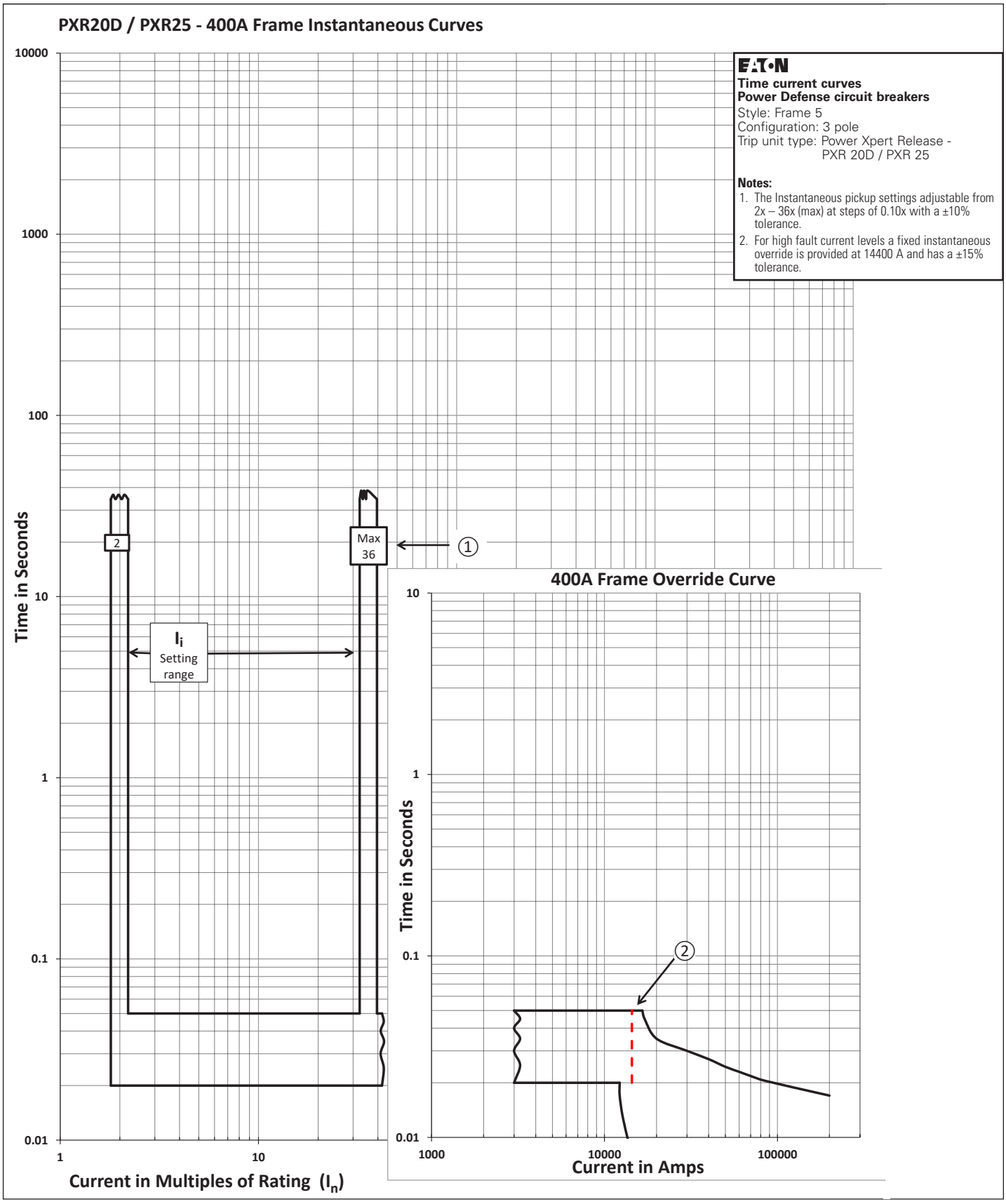

Figure 31. 400A frame PXR 20D / PXR 25 - instantaneous and override.

November 2019

Time current curves Power Defense MCCB Frame 5 PXR electronic trip units Standards: UL, CSA, IEC, CCC

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