T Frame - Series Circuit Breakers

Approvals

The T Frame circuit breaker carries various approvals such as VDE , cURus, CSA and is CE certified. It is also recognised to UL 1077 and listed to UL 489.

Features

- AC and DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability independent of ambient temperature
- Up to two poles
- VDE approved, CE certified
- UL compliant (listed / recognised)
- Ratings 0.1 to 30 A (specific certifications)
- Precision tripping characteristics
- Wide range of time delays
- Two colour handle indication (two tone flush rocker)

Applications

- AC and DC branch circuit installations
- Power conditioning
- Telecom power distribution
- Alternative energy equipment
- UPS equipment
- Lighting control
- Mobile power generation equipment

T Frame - Series Circuit Breakers

Technical Data

Product Type	T Frame
Operating Temperature Range	-40 °C to +85 °C
Endurance	10000 operations - 1500 electrical at rated current and voltage (IEC 60934) 6000 electrical operations (UL 1077)
Dielectric Strength	1000 - 2000 V, 50 Hz for one minute after testing (IEC 60934)
Weight	90 g per pole (unpacked)
Humidity	35 to 85% relative
Altitude	Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	100 G to MIL-STD-202G, test method 213B, test condition 1
Vibration	10 G to MIL-STD-202G test method 204D, test condition A
Flammability	I2 - No ignition at 850 °C with an oxygen index of ≥ 32
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.

Product Type	Circuit Breaker	Circuit Breaker	Circuit Breaker	Circuit Breaker
Approvals	UL 489 / CSA	IEC / EN 60934, VDE, CE	UL 1077 / CSA	IEC / EN 60947-2, VDE, CE
Number of Poles	1, 2	1, 2	1, 2	1, 2
Maximum Voltages	120 / 240 V AC, 240 V AC, 80 V DC	240 V AC, 80 V DC	277 V AC, 80 V DC	240 V AC, 80 V DC
Current Ratings	0.1 - 30 A AC, 0.1 - 30 A DC	0.1 - 30 A AC, 0.1 - 30 A DC	0.1 - 30 A DC	0.1 - 30 A AC, 0.1 - 30 A DC
Interrupting Capacity	10 kA	3 kA (AC), 5 kA (DC)	2 kA (AC), 5 kA (DC)	5 kA

T Frame - Series Circuit Breakers

Ordering Information

Group 1: Frame	**Code**	**Description**			**Comments**		
	T	T-Frame					
Group 2: Type	**Code**	**Description**			**Comments**		
	2	T-Frame, T-Type					
Group 3: Mounting	**Code**	**Description**			**Comments**		
	S	Front mount, rectangular aperture, flush rocker handle type			Warning: maximum penetration depth into the product by the mounting screw is 6 mm		
Group 4: Handle	**Code**	**Description**			**Comments**		
	H	Flush rocker handle for mounting version S, reduced handle version			Only 1 handle per unit		
	M	Flush rocker handle, two tone for mounting version S, reduced handle version			Only 1 handle per unit		
	W	No handle, blank front plate			For reduced handle version, on pole(s) without handle		
	Q	Flush rocker handle, push-to-reset handle, for mounting version S					
	R	Flush rocker handle, push-to-reset, two tone, for mounting version S					
Group 5: Termination	**Code**	**Description**			**Comments**		
	4X	Screw terminal, M5 or 10-32, top and bottom			30 A max		
Group 6: Number of Poles	**Code**	**Description**			**Code**	**Description**	
	1	1 pole metric			A	1 pole imperial	
	2	2 pole metric			B	2 pole imperial	
Group 7: Rated Voltages and Frequency - Main Circuit	**Code**	**Description**		**Comments**	**Code**	**Description**	**Comments**
	J	240 V 50 / 60 Hz			R	277 / 480 V 50 / 60 Hz	3 phase multi-wire system
	K	277 V 50 / 60 Hz			S	120 / 240 V 50 / 60 Hz	3 wire centre tap supply. 120 V per phase.
	N	80 V DC			Z	Special - specify	
	Q	240 / 415 V 50 / 60 Hz		3 phase multi-wire system			
Group 8: Time Delay Characteristics (Curves Details); Pulse Tolerance at 10 ms	**Code**	**Description**	**System**	**Pulse Tolerance (X In)**	**Code**	**Description**	**System**	**Pulse Tolerance (X In)**
	AD	Long delay 50 / 60 Hz AS & dual rated	AC and DC	8 - 10	CH	Short delay 50 / 60 Hz CS & high inrush	AC	12 - 15
	BD	Medium delay 50 / 60 Hz BS & dual rated	AC and DC	8 - 10	AS	Long delay 50 / 60 Hz	AC or DC	8 - 10
	CD	Short delay 50 / 60 Hz CS & dual rated	AC and DC	6 - 8	BS	Medium delay 50 / 60 Hz	AC or DC	8 - 10
	CS	Short delay 50 / 60 Hz	AC or DC	6 - 8	H3	Short delay	DC	6 - 8
	OP	Instantaneous trip 50 / 60 Hz	AC or DC	None	AH	Long delay 50 / 60 Hz AS & high inrush	AC	16 - 20
	ZZ	Special - specify			BH	Medium delay 50 / 60 Hz BS & high inrush	AC	16 - 20
Group 9: Rated Current (Main Circuit) Examples only - Specific A Rating Possible	**Code**	**Description**			**Comments**		
	XXXX	No current, for voltage trip poles			Specific A rating possible from 0.1 – 400 A		
	100M	100 mA					
	100	1 A					
	3000	30 A					
Group 10: Circuit Configuration (Circuit Breaker's Internal Construction)	**Code**	**Description**			**Comments**		
	BX	Series trip (circuit breaker, current coil in series)					
Group 11: Auxiliary and Alarm Switches	**Code**	**Description**			**Comments**		
	X	Not applicable			No auxiliary switch – flat base plate		
Group 12: Voltage and Current Ratings for Dual Control, Shunt and Relay Trip Construction	**Code**	**Description**			**Comments**		
	XX	Not applicable					
Group 13: Terminal Options for Dual Control, Shunt and Relay Coils	**Code**	**Description**			**Comments**		
	X	Not applicable					
Group 14: Voltage for Rocker Handle	**Code**	**Description**			**Comments**		
	X	Not applicable					
Group 15: Terminal for Illuminated Rocker	**Code**	**Description**			**Comments**		
	X	Not applicable					

T Frame - Series Circuit Breakers

Ordering Information

Group 16: Handle Colour	**Code**	**Description**		**Comments**		
	X	No handle				
	B	Black handle, white marking				
	G	Green handle, white marking				
	W	White handle, black marking				
	R	Red handle, white marking				
	Y	Yellow handle, black marking				
Group 17: Marking	**Code**	**Description**		**Comments**		
	X	No handle (n/a)				
	H	I – O and ON - OFF and ampere rating				
	I	Push-to-reset and ampere rating		Group 2 option S only. Group 3 options Q or R only. Flush rocker or two tone rocker handle.		
Group 18: Mounting Orientation for Marking	**Code**	**Description**		**Code**	**Description**	**Comments**
	X	No handle (n/a)		H	Horizontal (line at the left)	If the breaker needs to be reverse fed, the printing will be upside down and codes 1 or 2 should be selected.
	2	Horizontal (line at the right)		V	Vertical (standard mounting, line at the top)	
Group 19: Front Plate Marking and Test Button	**Code**	**Description**	**Comments**	**Code**	**Description**	**Comments**
	2	No marking, with test button, rocker handle	Test button for mechanical trip	B	No marking, rocker handle	
Group 20: Inter-phase Barrier and Terminal Cover	**Code**	**Description**		**Comments**		
	X	Not applicable				
Group 21: Approvals (Product Normally Approved to)	**Code**	**Description**		**Comments**		
	1	CUR, UL recognised UL 1077, IEC / EN 60934, CSA, VDE, CE		UL 1077, normally IEC / EN 60934		
	2	CUL, UL listed UL 489, CSA, IEC / EN 60947-2, VDE, CE		UL 489, normally IEC / EN 60947-2		
	Z	No third party approvals				
Group 22: Safety Marks	**Code**	**Description**		**Comments**		
	X	Not applicable				

For options not listed, please contact CBI

T Frame - Series Circuit Breakers

T Frame 80 V DC - cURus, UL 1077, CSA

cURus, UL 1077, CSA	Poles		1 Pole	2 Pole
	80 V	DC	X	
	Rocker Handle Flush		0.1 - 30 A; 5 kA	0.1 - 30 A; 5 kA
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame 80 V DC - UL 489

UL 489	Poles		1 Pole	2 Pole
	80 V	DC	X	X
	Rocker Handle Flush		0.1 - 30 A; 10 kA	0.1 - 30 A; 10 kA
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame 80 V DC - IEC / EN 60947-2, VDE, CE

IEC / EN 60947-2 , VDE,	Poles		1 Pole	2 Pole
	80 V	DC	X	X
	Rocker Handle Flush		0.1 - 30 A; 5 kA	0.1 - 30 A; 5 kA
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame 80 V DC - IEC / EN 60934, VDE, CE

IEC / EN 60947-2 , VDE,	Poles		1 Pole	2 Pole
	80 V	DC	X	X
	Rocker Handle Flush		0.1 - 30 A; 5 kA	0.1 - 30 A; 5 kA
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame - Series Circuit Breakers

T Frame 120 V AC - UL 489

	Poles		1 Pole	2 Pole
UL 489	120 V	AC	X	
	120 / 240 V	AC		X
	Rocker Handle Flush		0.1 - 30 A; 10 kA	0.1 - 30 A; 10 kA
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame 240 V AC - UL 489

	Poles		1 Pole	2 Pole
UL 489	240 V	AC	X	X
	Rocker Handle Flush		0.1 - 30 A; 10 kA	0.1 - 30 A; 10 kA
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame 240 V AC - IEC / EN 60934, VDE, CE

	Poles		1 Pole	2 Pole
IEC / EN 60947-2 , VDE,	240 V	AC	X	X
	Rocker Handle Flush		0.1 - 30 A; 3 kA	0.1 - 30 A; 3 kA
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, CE, AD, BD, CD, US, OP	

T Frame 240 V AC - IEC / EN 60947-2, VDE, CE

	Poles		1 Pole	2 Pole
IEC / EN 60947-2 , VDE,	240 V	AC	X	X
	Rocker Handle Flush		0.1 - 30 A; 5 kA	0.1 - 30 A; 5 kA
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame - Series Circuit Breakers

T Frame 240 V AC - UL 489

UL 489A	Poles		1 Pole	2 Pole
	240 V	AC	X	X
	Rocker Handle Flush		0.1 - 30 A; 10 kA	0.1 - 30 A; 10 kA
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame 240 V AC / 80 V DC - cURus, UL 1077, CSA

cURus, UL1077, CSA	Poles		1 Pole	2 Pole
	240 V AC / 80 V DC	AC / DC	X	X
	Rocker Handle Flush		0.1 - 30 A; 2 kA (AC) 5 kA (DC)	0.1 - 30 A; 2 kA (AC) 5 kA (DC)
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame 240 V AC / 80 V DC - UL 489

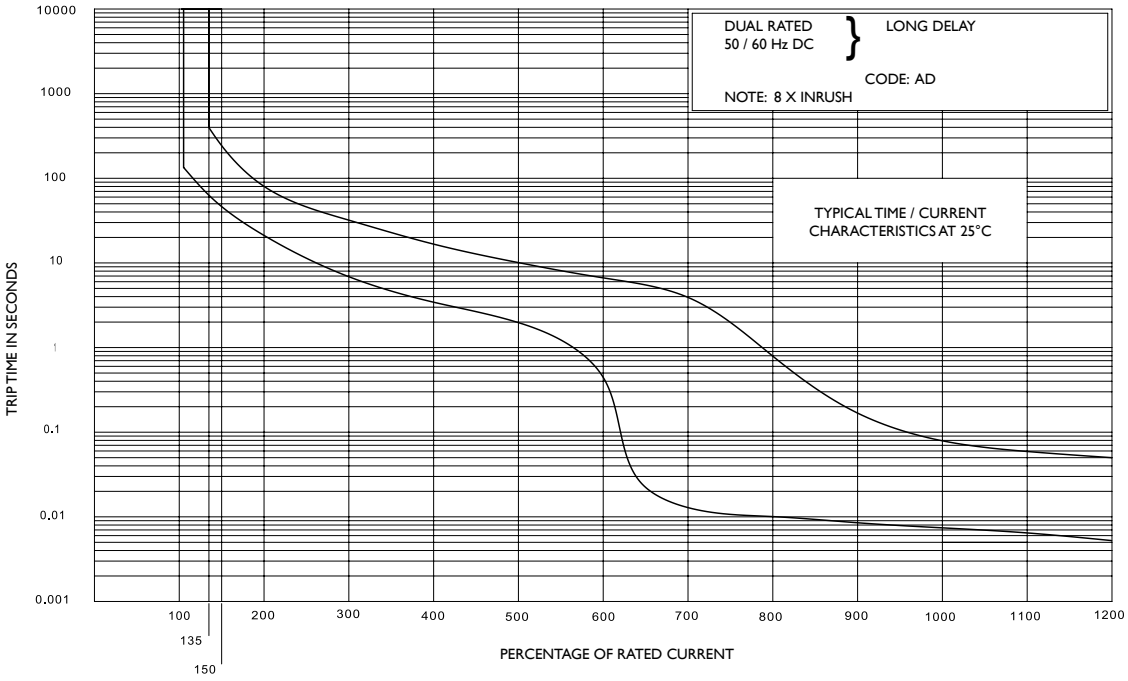
UL 489	Poles		1 Pole	2 Pole
	240 V / 80 V	AC / DC	X	X
	Rocker Handle Flush		0.1 - 30 A; 10 kA	0.1 - 30 A; 10 kA
	Front Mount		X	X
	Screw Terminal		≤ 30 A	≤ 30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame 277 V AC - cURus, UL 1077, CSA

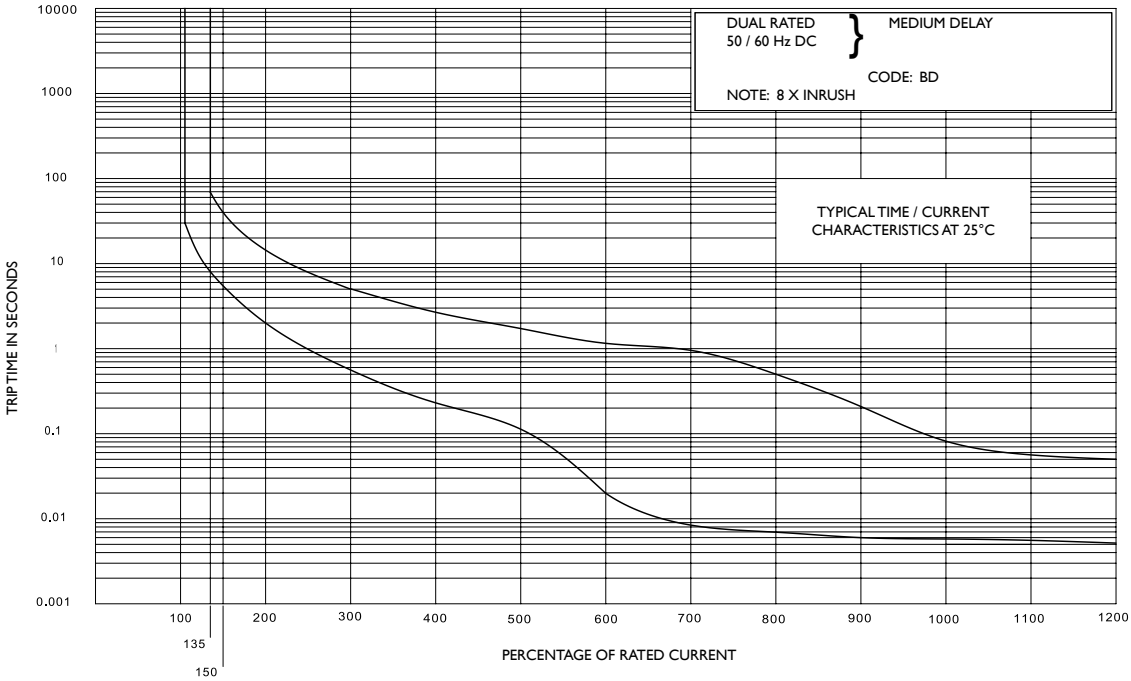
cURus, UL 1077, CSA	Poles		1 Pole	2 Pole
	277 V	AC	X	
	Rocker Handle Flush		0.1 - 30 A; 2 kA	0.1 - 30 A; 2 kA
	Front Mount		X	X
	Screw Terminal		≤30 A	≤30 A
	Series Trip		X	X
	Time Delay		AS, BS, CS, H3, AH, BH, CH, AD, BD, CD, US, OP	

T Frame - Series Circuit Breakers

T Frame Time Delay Curves



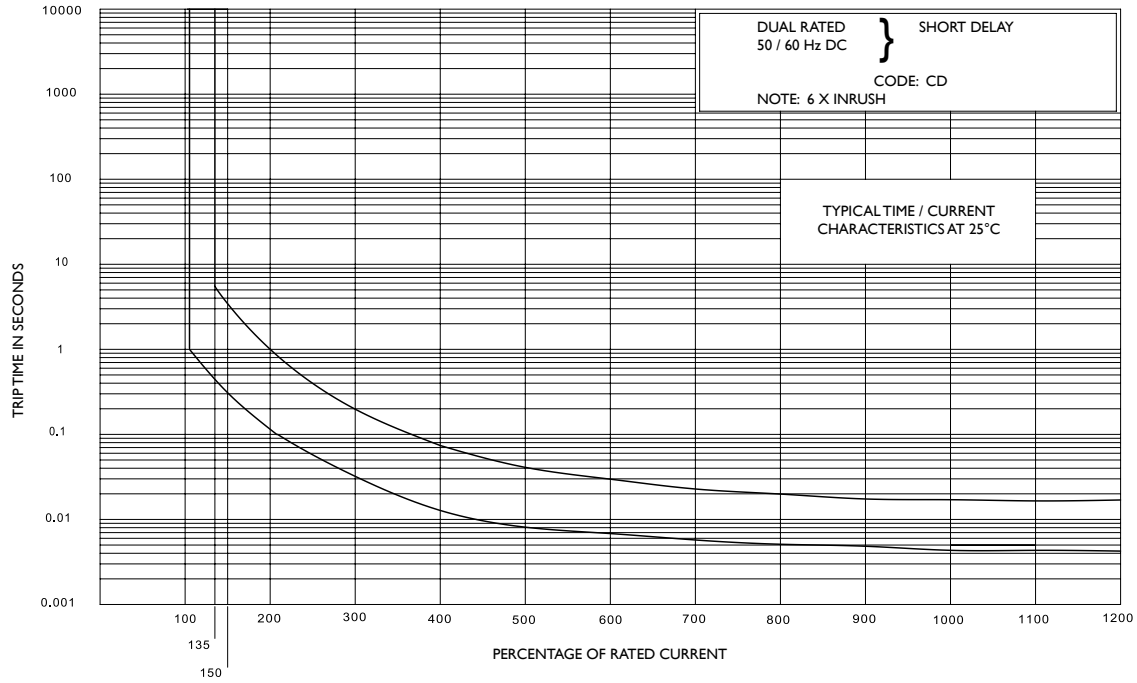
PERCENTAGE OF RATED CURRENT	100%	135%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	60	48	21	7	3.5	2	0.45	0.014	0.010	0.0085	0.0075	0.0065	0.005
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	375	260	80	32	17	10	6.8	4	0.8	0.180	0.08	0.06	0.05



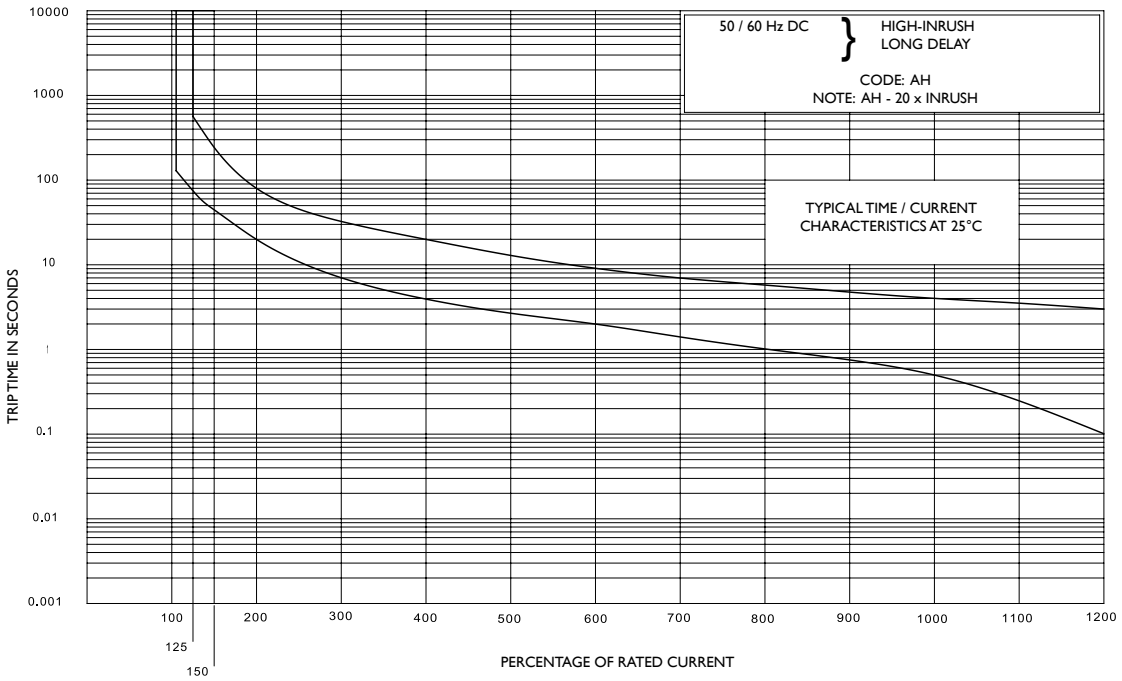
PERCENTAGE OF RATED CURRENT	100%	135%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	7.5	5.5	2	0.55	0.21	0.12	0.02	0.0085	0.007	0.006	0.006	0.0055	0.005
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	75	40	14	5	2.8	1.8	1.2	0.98	0.5	0.2	0.08	0.058	0.05

DD Frame - Series Circuit Breakers

T Frame Time Delay Curves



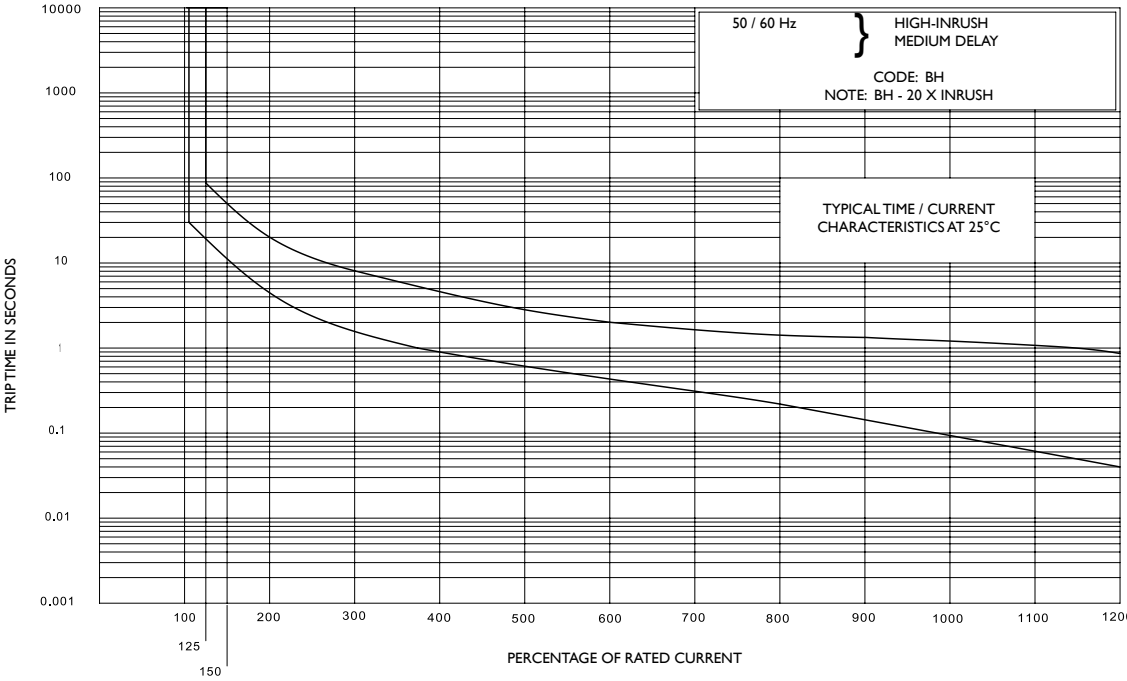
PERCENTAGE OF RATED CURRENT	100%	135%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	0.4	0.3	0.13	0.031	0.014	0.008	0.007	0.0059	0.005	0.005	0.0043	0.0043	0.0042
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	5	3.5	1	0.2	0.075	0.04	0.03	0.024	0.02	0.018	0.018	0.018	0.018



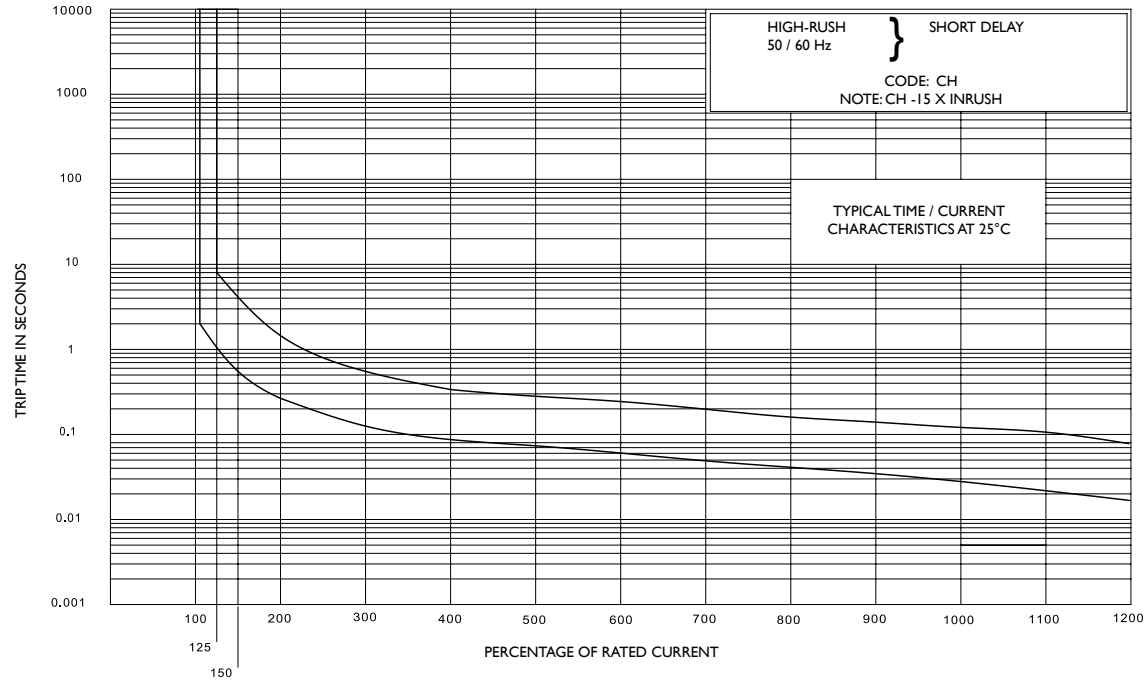
PERCENTAGE OF RATED CURRENT	100%	125%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	73	45	20	7	4	2.8	2	1.5	1	0.75	0.5	0.25	0.1
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	560	220	80	32	20	15	9	7	5.9	4.9	4	3.5	3

T Frame - Series Circuit Breakers

T Frame Time Delay Curves



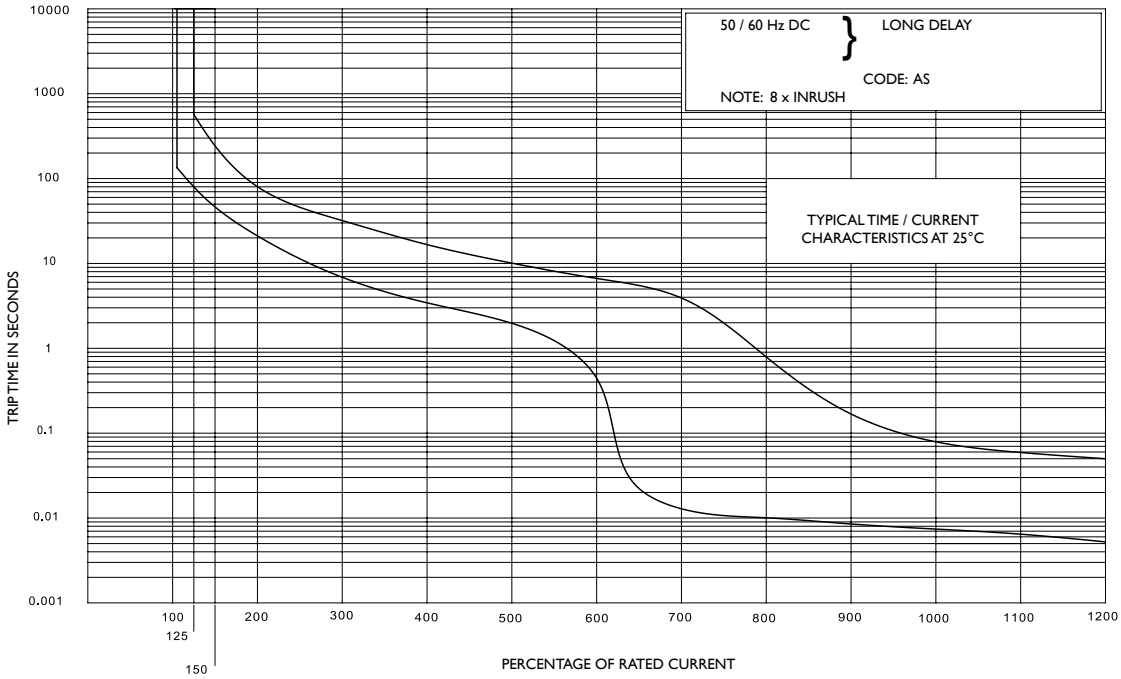
PERCENTAGE OF RATED CURRENT	100%	125%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	19	11	4.4	1.5	0.9	0.6	0.43	0.3	0.22	0.14	0.094	0.06	0.04
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	90	50	20	8	4.5	2.9	2	1.7	1.4	1.3	1.2	1.1	0.85



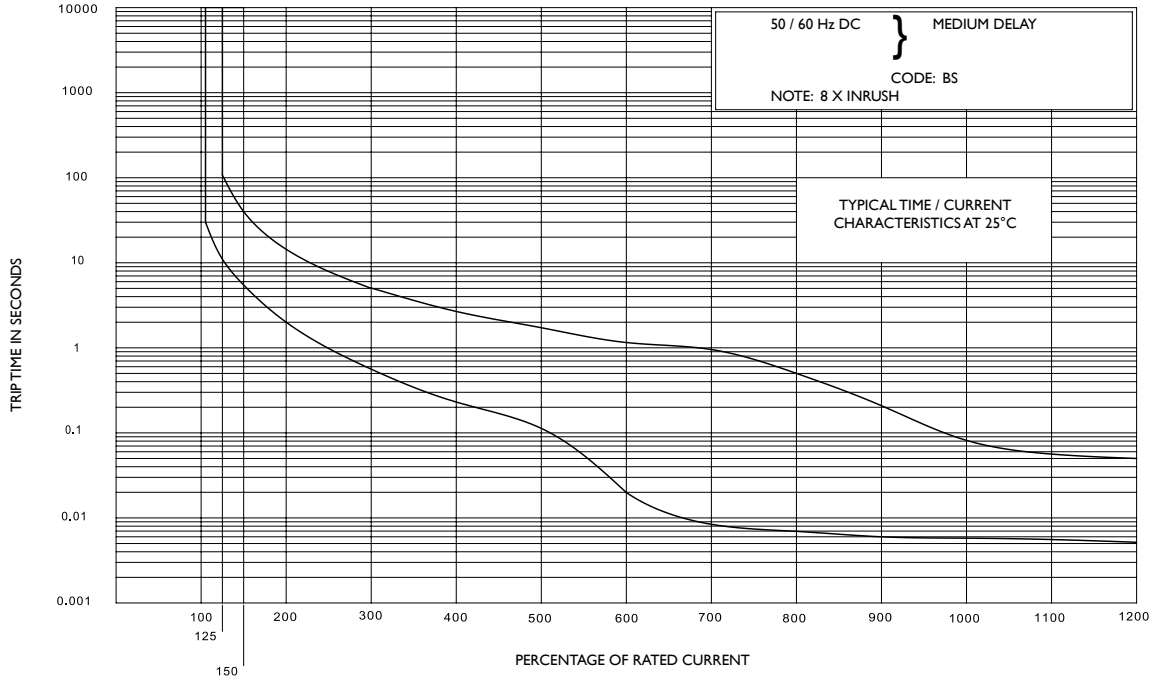
PERCENTAGE OF RATED CURRENT	100%	125%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	1	0.55	0.28	0.120	0.09	0.08	0.06	0.05	0.04	0.035	0.028	0.022	0.018
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	10	4	1.4	0.55	0.34	0.29	0.25	0.2	0.17	0.15	0.13	0.1	0.08

T Frame - Series Circuit Breakers

T Frame Time Delay Curves



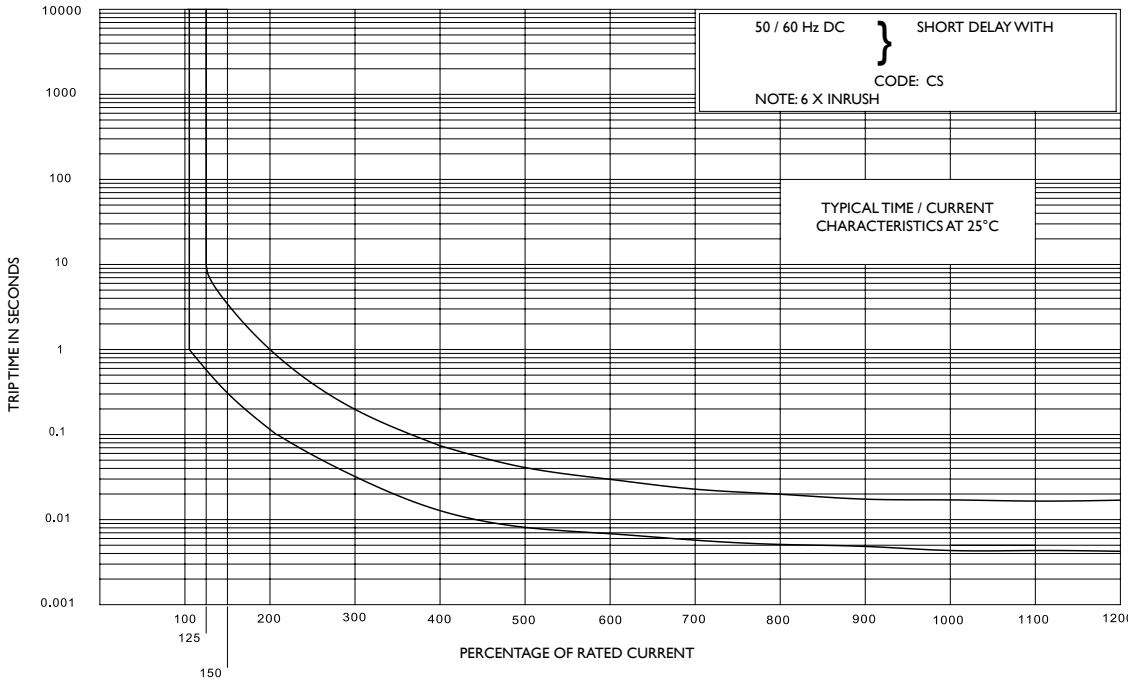
PERCENTAGE OF RATED CURRENT	100%	125%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	80	48	21	7	3.5	2	0.45	0.014	0.010	0.0085	0.0075	0.0065	0.005
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	560	260	80	32	17	10	6.8	4	0.8	0.180	0.08	0.06	0.05



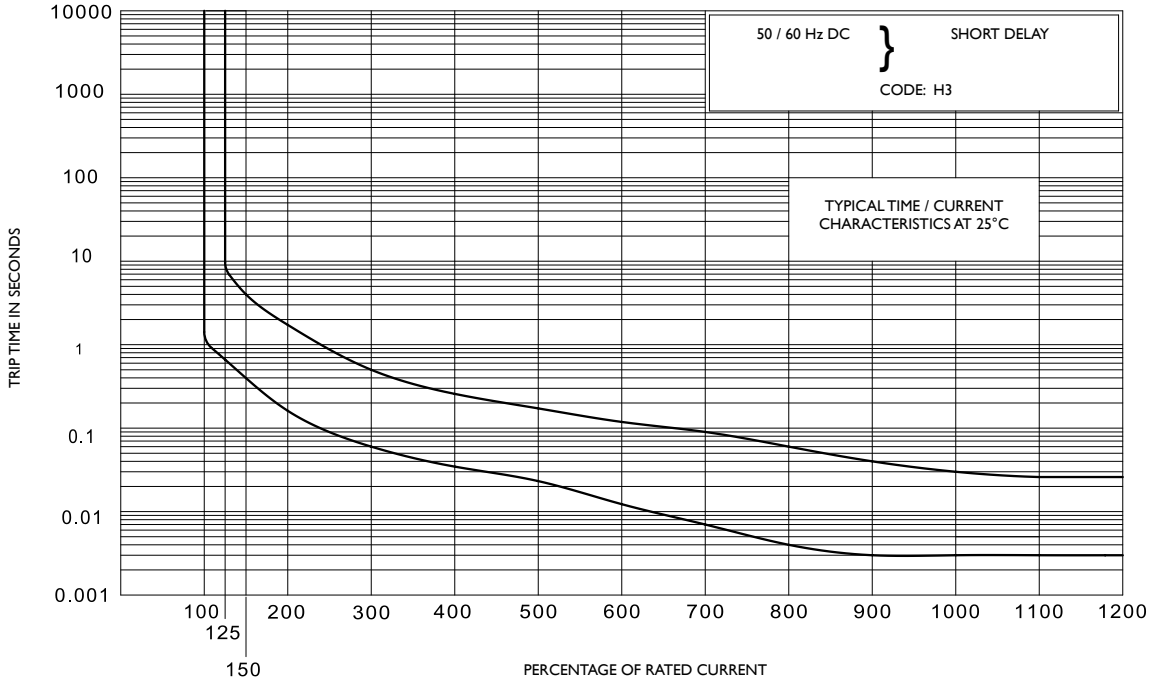
PERCENTAGE OF RATED CURRENT	100%	125%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	12	5.5	2	0.55	0.21	0.12	0.02	0.0085	0.007	0.006	0.006	0.0055	0.005
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	100	40	14	5	2.8	1.8	1.2	0.98	0.5	0.2	0.08	0.058	0.05

T Frame - Series Circuit Breakers

T Frame Time Delay Curves



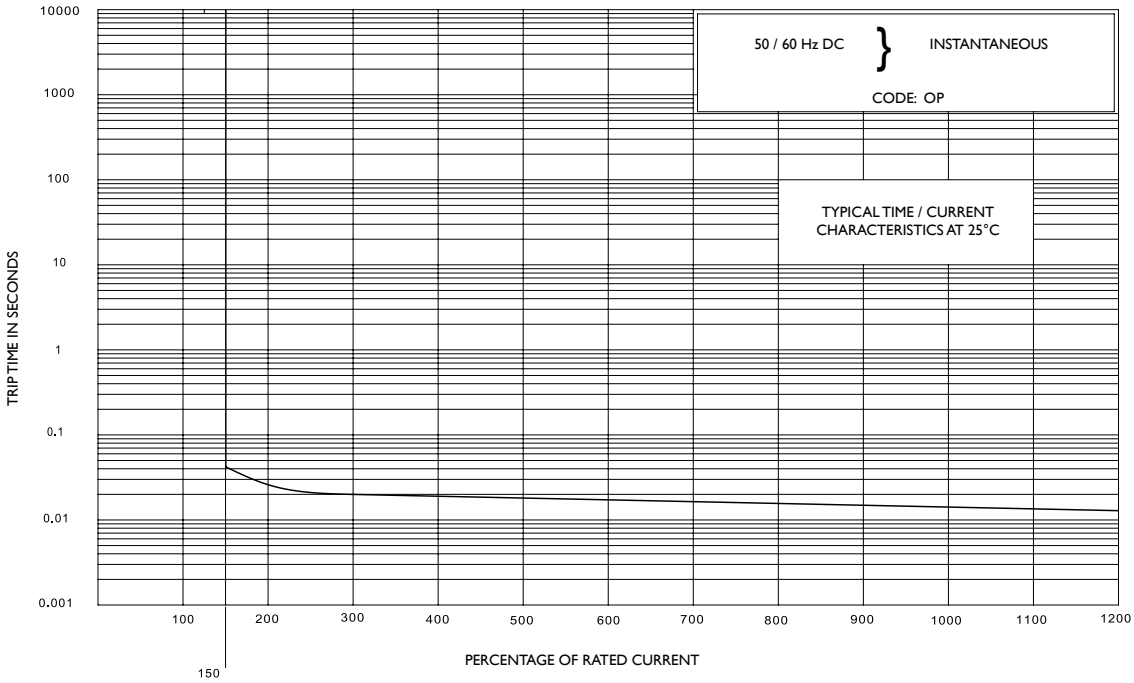
PERCENTAGE OF RATED CURRENT	100%	125%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	0.6	0.3	0.13	0.031	0.014	0.008	0.007	0.0059	0.005	0.005	0.0043	0.0043	0.0042
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	10	3.5	1	0.2	0.075	0.04	0.03	0.024	0.02	0.018	0.018	0.018	0.018



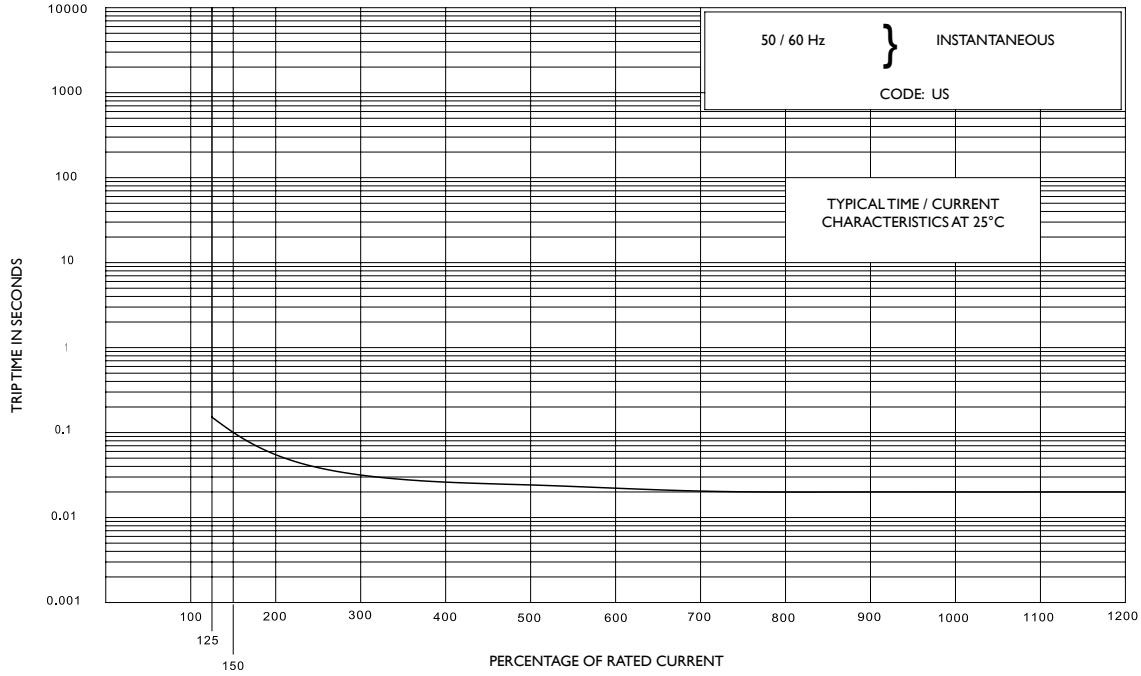
PERCENTAGE OF RATED CURRENT	100%	125%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	0.65	0.4	0.18	0.06	0.035	0.023	0.013	0.007	0.004	0.003	0.003	0.003	0.003
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	8.5	4	1.7	0.5	0.28	0.18	0.12	0.09	0.06	0.04	0.03	0.028	0.028

T Frame - Series Circuit Breakers

T Frame Time Delay Curves



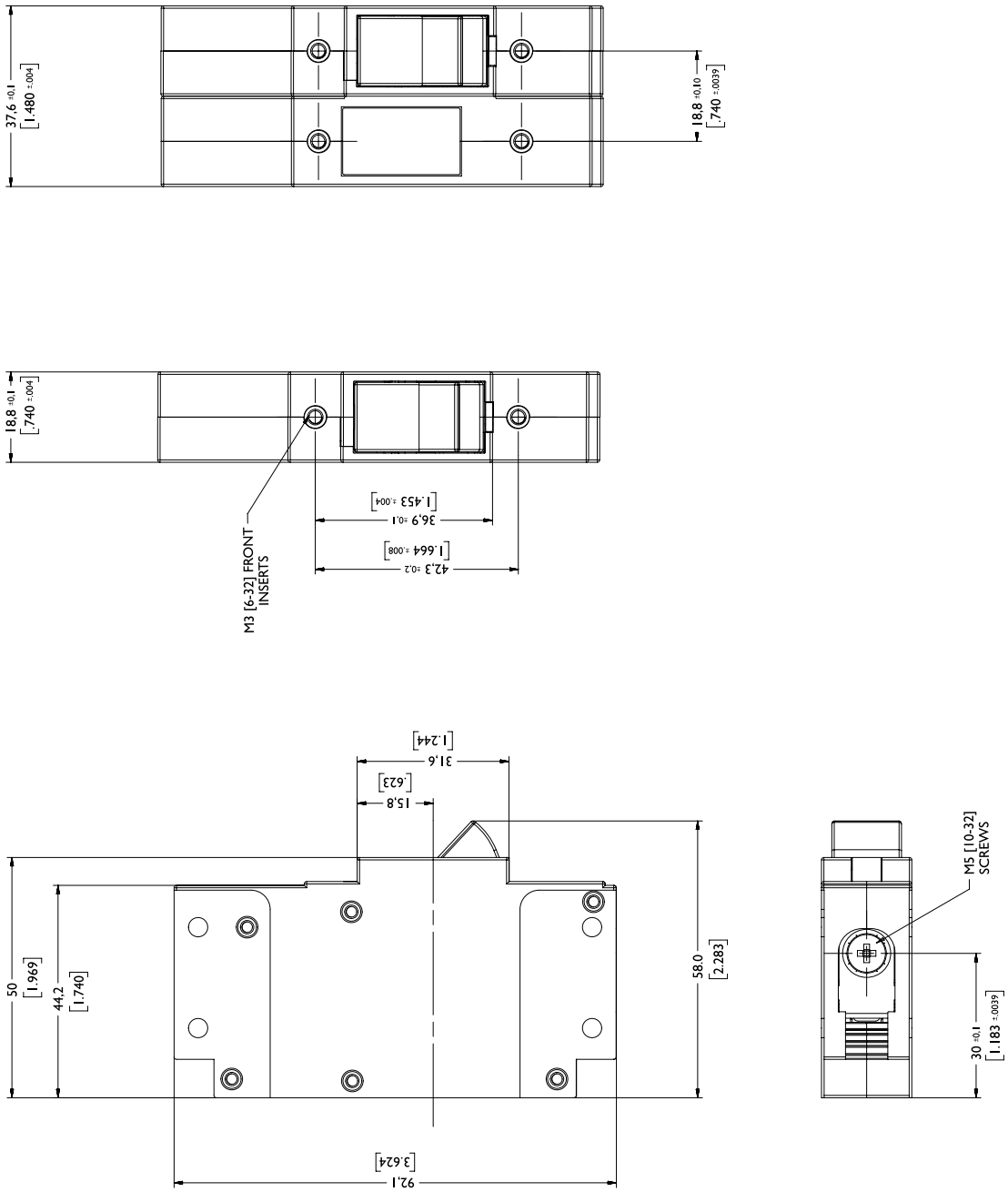
PERCENTAGE OF RATED CURRENT	100%	125%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	MAY TRIP	-	-	-	-	-	-	-	-	-	-	-	-
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	MAY TRIP	0.04	0.035	0.02	0.019	0.018	0.017	0.016	0.015	0.014	0.014	0.013	0.013



PERCENTAGE OF RATED CURRENT	100%	125%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	-	-	-	-	-	-	-	-	-	-	-	-	-
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	0.150	0.10	0.056	0.032	0.027	0.024	0.022	0.020	0.020	0.020	0.020	0.020	0.020

T Frame - Series Circuit Breakers

T Frame Outline Dimensions



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