

Series C® R-Frame



Typical Series C R-Frame Circuit Breaker

- R-frame circuit breakers are available as frame (which includes trip unit), rating plug and terminals.
- All R-frame circuit breakers are suitable for reverse feed use.

Interrupting Capacity Ratings

UL489/CSA Interrupting Capacity Ratings ①

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes) (kA)				Circuit Breaker Type	Page Numbers					
		Volts Ac (50/60 Hz)					Trip Unit Types②					
		240	277	480	600		310	510	610	810	910	OPTIM
RD	3, 4	125	–	65	50	RD	91	94	96	98	100	102
CRD ③	3, 4	125	–	65	50	CRD	93	95	97	99	101	103
RDC	3, 4	200	–	100	65	RDC	92	94	96	98	100	102
CRDC ③	3, 4	200	–	100	65	CRDC	93	95	97	99	101	103



IEC 947-2 Interrupting Capacity Ratings ①

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes) (kA)			Circuit Breaker Type	Page Numbers					
		Volts Ac (50/60 Hz)				Trip Unit Types②					
		240	415	690		310	510	610	810	910	OPTIM
RD	3, 4				RD	91	94	96	98	100	102
I _{CU} I _{CS}		135 100	70 50	25 13							
RDC	3, 4				RDC	92	94	96	98	100	102
I _{CU} I _{CS}		200 100	100 50	35 18							

① Utilization Category A circuit breakers.
 ② See page 90 for Trip Unit Selection Guide
 ③ 100% Rated breakers.

Series C® R-Frame

R-Frame Digitrip Selection Guide

Trip Unit Type	Digitrip RMS 310	Digitrip RMS 510	Digitrip RMS 610	Digitrip OPTIM 750	Digitrip RMS 810	Digitrip RMS 910	Digitrip OPTIM 1050	
RMS Sensing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Breaker Type								
Frame	R	R	R	R	R	R	R	
Ampere Range	800A-2500A	800A-2500A	800A-2500A	800A-2500A	800A-2500A	800A-2500A	800A-2500A	
Interrupting Rating @ 480V	65, 100 (kA)	65, 100 (kA)	65, 100 (kA)	65, 100 (kA)	65, 100 (kA)	65, 100 (kA)	65, 100 (kA)	
Protection								
Ordering Options	LS, LSG	LSI, LSIG	LI, LS, LSI, LIG, LSG, LSIG	LI, LS, LSI, LIG, LSG, LSIG	LSI(A), LSIG	LI, LS, LSI, LIG, LSG, LSIG	LSI(A), LSIG	
Fixed Rated Plug (I _n)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Overtemperature Trip	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Long Delay Protection (L)								
Adjustable Rating Plug (I _n)	Yes	Yes	No	No	No	No	No	
Long Delay Pickup	0.5-1.0 (I _n) ^①	0.5-1.0 (I _n) ^①	0.5-1.0 x (I _n)	0.5-1.0 x (I _n)	0.4-1.0 x (I _n)	0.5-1.0 x (I _n)	0.5-1.0 x (I _n)	0.4-1.0 x (I _n)
Long Delay Time I ² T	12 Seconds	12 Seconds	2-24 Seconds	2-24 Seconds	2-24 Seconds	2-24 Seconds	2-24 Seconds	2-24 Seconds
Long Delay Time I ⁴ T	No	No	No	No	1-5 Seconds	No	No	1-5 Seconds
Long Delay Thermal Memory	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
High Load Alarm	No	No	No	0.85 x I _r	0.5-1.0 x I _r	0.85 x I _r	0.85 x I _r	0.5-1.0 x I _r
Short Delay Protection (S)								
Short Delay Pickup	200-800% x (I _n) ^②	200-800% x (I _n) ^②	200-600% S1&S2 x (I _r)	200-600% S1&S2 x (I _r)	150-800% x (I _n) ^③	200-600% S1&S2 x (I _r)	200-600% S1&S2 x (I _r)	150-800% x (I _n) ^③
Short Delay Time I ² T	100 ms	No	100-500 ms	100-500 ms	100-500 ms	100-500 ms	100-500 ms	100-500 ms
Short Delay Time Flat	No	Inst-300 ms	100-500 ms	100-500 ms	100-500 ms	100-500 ms	100-500 ms	100-500 ms
Short Delay Time Zone Selective Interlocking	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Instantaneous Protection (I)								
Instantaneous Pick Up	No	200-800% x (I _n)	200-600% M1&M2 x (I _n)	200-600% M1&M2 x (I _n)	200-800% x (I _n) ^③	200-600% M1&M2 x (I _n)	200-600% M1&M2 x (I _n)	200-800% x (I _n) ^③
Discriminator	No	No	Yes ^④	Yes ^④	Yes	Yes ^④	Yes ^④	Yes
Instantaneous Override	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ground Fault Protection (G)								
Ground Fault Alarm ^⑤	No	No	No	No	25-100% x (I _n)	No	No	25-100% x (I _n)
Ground Fault Pick Up ^⑤	Varies by Frame	Varies by Frame	25-100% x (I _s)	25-100% x (I _s)	25-100% x (I _n)	25-100% x (I _s)	25-100% x (I _s)	25-100% x (I _n)
Ground Fault Delay I ² T	No	No	100-500 ms	100-500 ms	100-500 ms	100-500 ms	100-500 ms	100-500 ms
Ground Fault Delay Flat	Inst-500 ms	Inst-500 ms	100-500 ms	100-500 ms	100-500 ms	100-500 ms	100-500 ms	100-500 ms
Ground Fault Zone Selective Interlocking	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Ground Fault Thermal Memory	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
System Diagnostics								
Status LEDs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cause of Trip LEDs	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Magnitude of Trip Information	No	No	No	Yes	Yes	Yes	Yes	Yes
Remote Signal Contacts	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
System Monitoring								
Digital Display	No	No	No	Yes	Yes ^⑥	Yes	Yes	Yes ^⑥
Current	No	No	No	Yes	Yes	Yes	Yes	Yes
Voltage	No	No	No	No	No	No	Yes	No
Power and Energy	No	No	No	No	No	Yes	Yes	Yes
Power Quality-Harmonics	No	No	No	No	No	No	Yes	Yes
Power Factor	No	No	No	No	No	Yes (Over Cutler-Hammer Power-Net Only)	Yes	Yes
Communications								
Cutler-Hammer PowerNet	No	No	No	No	Yes	Yes	Yes	Yes
Testing								
Testing Method	Test Set		Integral	Integral	OPTIMizer, BIM, Cutler-Hammer PowerNet	Integral	Integral	OPTIMizer, BIM, Cutler-Hammer PowerNet

① Adjust by rating plug.

② Except 2500 ampere frame is 200-600%.

③ Varies by frame.

④ LS/LSG only.

⑤ Not to exceed 1200 amperes.

⑥ By OPTIMizer/BIM.

BIM = Breaker Interface Module

(A) = GF Alarm

I_s = Sensor RatingI_n = Rating PlugI_r = Long Delay Pickup Setting x I_n


Series C® R-Frame

100% Rated Digitrip RMS 310 Electronic Circuit Breakers①

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity. Order as individual components: Breaker Frame (which includes Trip Unit) and Rating Plug.

Maximum Continuous Ampere Rating @ 40°C	Circuit Breaker Frame Only				Digitrip RMS 310 Rating Plug Only		
	L – Adjustable Long Delay Pickup (By Adjustable Rating Plug) S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I ² t Response) or Adjustable Short Delay Time (Flat Response) I – Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (Flat Response)				Ampere Rating	Fixed Rating Plug	Adjustable Rating Plug
							Adjustable Ampere Ratings Catalog Number
	LS	LSI	LSG③	LSIG③			
Catalog Number							

3-Pole Standard Interrupting Capacity 600 Volt Ac Rated 65 kAIC @ 480 Vac

Rating	CRD316T33W	CRD316T32W	CRD316T35W	CRD316T36W	Ampere Rating	Fixed Rating Plug	Adjustable Settings are:
1600②					800 1000 1200 1250 1400 1500 1600	16RES08T 16RES10T 16RES12T 16RES125T 16RES14T 16RES15T 16RES16T	800, 1000, 1200, 1600 A16RES16T1
2000 	CRD320T33W	CRD320T32W	CRD320T35W	CRD320T36W	1000 1200 1250 1400 1600 2000	20RES10T 20RES12T 20RES125T 20RES14T 20RES16T 20RES20T	1000, 1200, 1600, 2000 A20RES20T1

3-Pole High Interrupting Capacity 600 Volt Ac Rated 100 kAIC @ 480 Vac

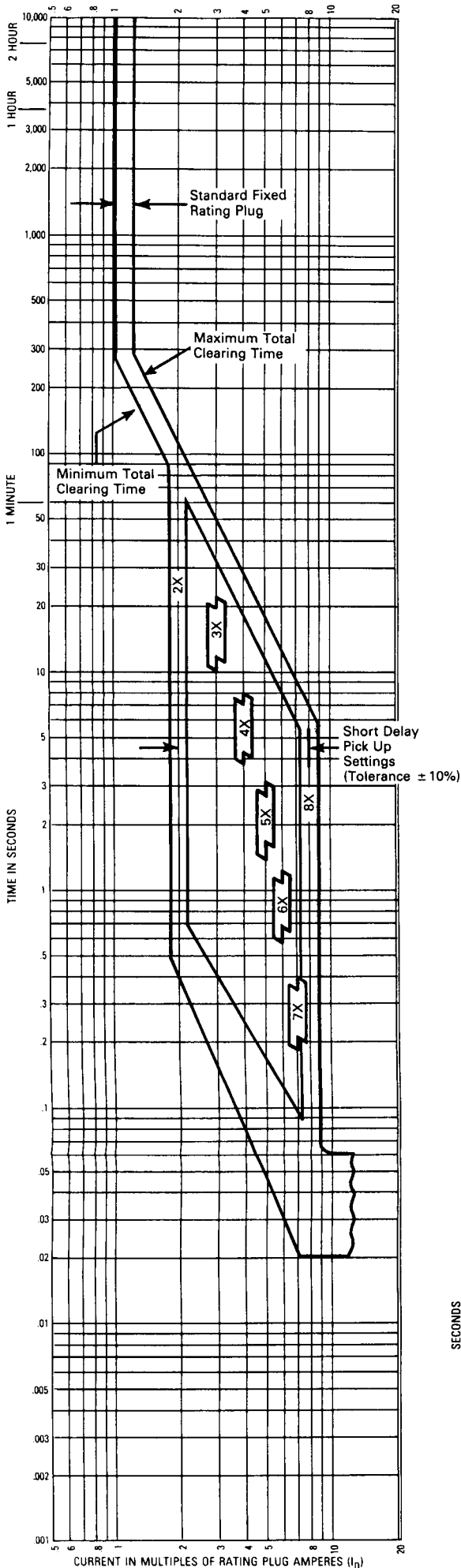
Rating	CRDC316T33W	CRDC316T32W	CRDC316T35W	CRDC316T36W	Ampere Rating	Fixed Rating Plug	Adjustable Settings are:
1600①②					800 1000 1200 1250 1400 1500 1600	16RES08T 16RES10T 16RES12T 16RES125T 16RES14T 16RES15T 16RES16T	800, 1000, 1200, 1600 A16RES16T1
2000	CRDC320T33W	CRDC320T32W	CRDC320T35W	CRDC320T36W	1000 1200 1250 1400 1600 2000	20RES10T 20RES12T 20RES125T 20RES14T 20RES16T 20RES20T	1000, 1200, 1600, 2000 A20RES20T1

Instruction Leaflet/FRED Number 29C107 for Breaker; Number 29C883 for Digitrip 310 Trip Unit

① Includes B2016RDL rear connections. Refer to TD.29.02.T.E for dimensions.
② For SCR application use 2000 ampere frame.
③ Add suffix "R" to breaker catalog number for ground fault remote indication compatibility.



CURRENT IN MULTIPLES OF RATING PLUG AMPERES (I_n)



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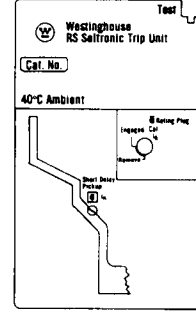
Circuit Breaker Time/Current Curves (Phase Current)®

Series C® — Types RD/RDC
Equipped With Type RS Seltronic Trip Units

For use with Trip Unit Cat. Nos.:

1600A Max.	2000A Max.
RS31600T	RS32000T
RS31600TG	RS32000TG
RS41600T	RS42000T

Typical Trip Unit Nameplate



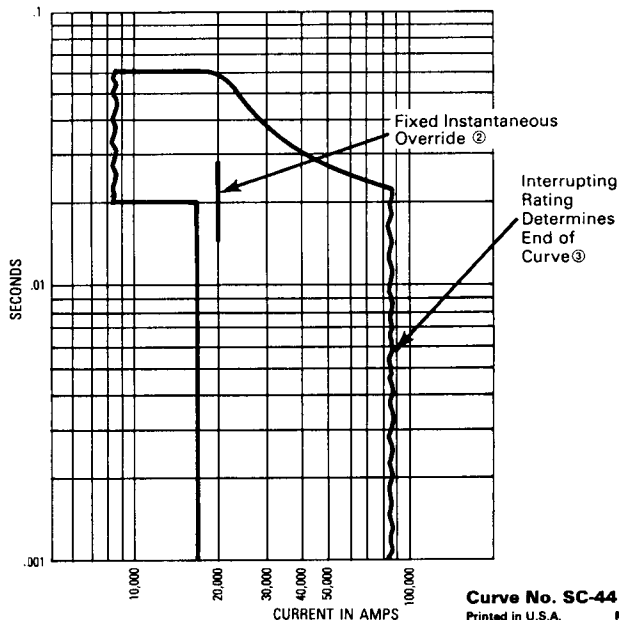
Frame Rating Amperes (Max.)	Available Rating Plugs Amperes Rating (I_n)	Type	Cat. No.	Short Delay Pickup Range Amperes	
1600	1600	Fixed	16RS16T	3200-12800	
	1400	Fixed	16RS14T	2800-11200	
	1250	Fixed	16RS125T®	2500-10000	
	1200	Fixed	16RS12T	2400-9600	
	1000	Fixed	16RS10T	2000-8000	
	800	Fixed	16RS08T	1600-6400	
	800, 1000, 1200, 1600	Adj.	A16RS16T1	1600-12800	
	800, 1000, 1250, 1600	Adj.	A16RS16T2®	1600-12800	
	2000	2000	Fixed	20RS20T	4000-16000
		1600	Fixed	20RS16T	3200-12800
1400		Fixed	20RS14T	2800-11200	
1250		Fixed	20RS125T®	2500-10000	
1200		Fixed	20RS12T	2400-9600	
1000		Fixed	20RS10T	2000-8000	
1000, 1200, 1600, 2000		Adj.	A20RS20T1	2000-16000	
1000, 1250, 1600, 2000		Adj.	A20RS20T2®	2000-16000	

Interrupting Ratings — 50/60 Hz
RMS Sym. Amperes (kA)

Breaker Type	UL/CSA			IEC 947-2		I_{CU}
	240V	480V	600V	220-240V	380-415V	
RD	125	65	50	125	65	42
RDC	200	100	65	200	100	65

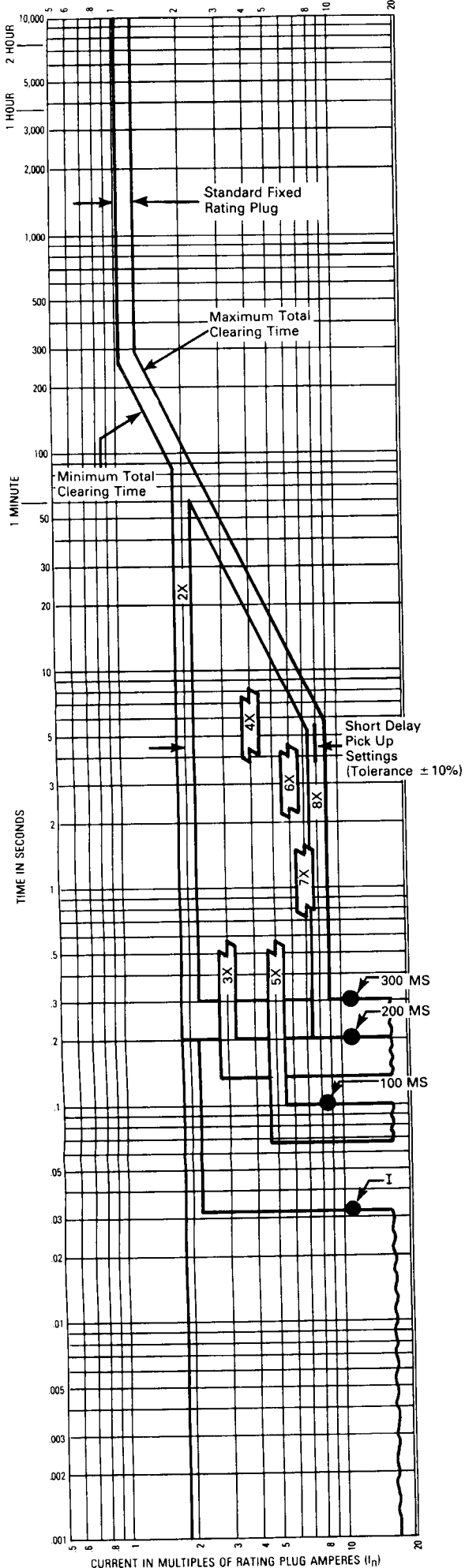
Utilization Category A
 $I_{CS} = 0.25 I_{CU}$
 $U_{imp} = 8 \text{ kV}$

- ① Curve accuracy applies from -20°C to $+55^\circ\text{C}$ ambient. For possible ampere derating for ambient above 40°C , refer to Westinghouse.
- ② For high fault current levels a fixed instantaneous override is provided at 20,000A (Tolerance $\pm 15\%$).
- ③ The end of the curve is determined by the interrupting rating of the circuit breaker. See above tabulation.
- ④ Seltronic trip units are suitable for functional field testing with test kit Cat. No. STK2. For field testing using primary injection methods, follow NEMA publication AB-4-1990.
- ⑤ Not UL/CSA Listed.
- ⑥ For ground fault time-current curves see SC-4412-88B.





CURRENT IN MULTIPLES OF RATING PLUG AMPERES (I_n)



Westinghouse Electric Corporation
Original Components Division

FRED
441188

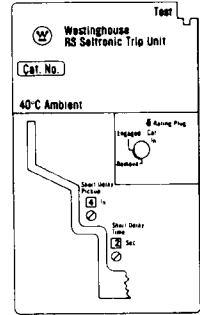
Circuit Breaker Time/Current Curves (Phase Current)®

Series C® — Types RD/RDC
Equipped with Type RS Seltronic Trip Units

For use with Trip
Unit Cat. Nos.:

1600A Max.	2000A Max.
RS31600TA	RS32000TA
RS31600TAG	RS32000TAG
RS41600TA	RS42000TA

Typical Trip Unit Nameplate



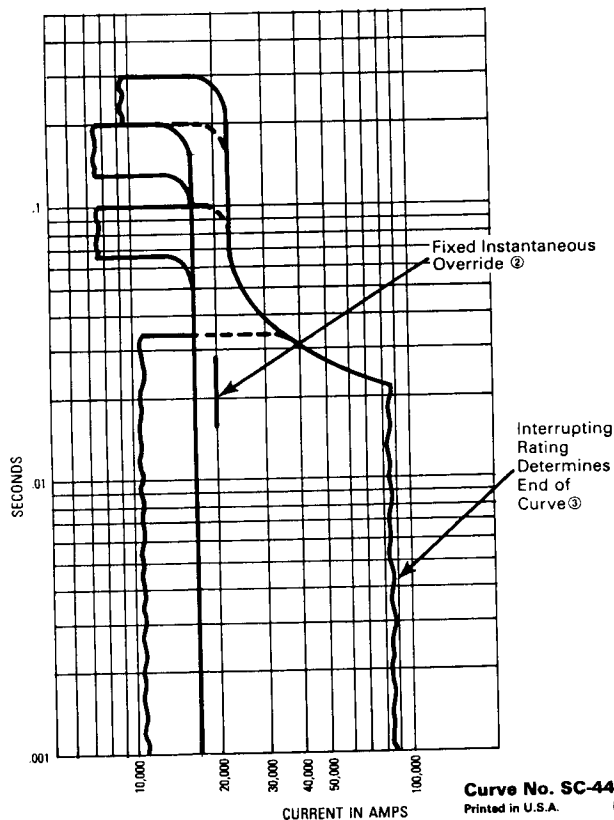
Frame Rating Amperes (Max.)	Available Rating Plugs Amperes Rating (I_n)	Type	Cat. No.	Short Delay Pickup Range Amperes	
1600	1600	Fixed	16RS16T	3200-12800	
	1400	Fixed	16RS14T	2800-11200	
	1250	Fixed	16RS125T®	2500-10000	
	1200	Fixed	16RS12T	2400-9600	
	1000	Fixed	16RS10T	2000-8000	
	800	Fixed	16RS08T	1600-6400	
	800, 1000, 1200, 1600	Adj.	A16RS16T1	1600-12800	
	800, 1000, 1250, 1600	Adj.	A16RS16T2®	1600-12800	
	2000	2000	Fixed	20RS20T	4000-16000
		1600	Fixed	20RS16T	3200-12800
1400		Fixed	20RS14T	2800-11200	
1250		Fixed	20RS125T®	2500-10000	
1200		Fixed	20RS12T	2400-9600	
1000		Fixed	20RS10T	2000-8000	
1000, 1200, 1600, 2000		Adj.	A20RS20T1	2000-16000	
1000, 1250, 1600, 2000		Adj.	A20RS20T2®	2000-16000	

Interrupting Ratings — 50/60 Hz
RMS Sym. Amperes (kA)

Breaker Type	UL/CSA			IEC 947-2		I_{CU}
	240V	480V	600V	220-240V	380-415V	
RD	125	65	50	125	65	42
RDC	200	100	65	200	100	65

Utilization Category A
 $I_{CS} = 0.25 I_{CU}$
 $U_{imp} = 8 \text{ kV}$

- ① Curve accuracy applies from -20°C to $+55^{\circ}\text{C}$ ambient. For possible ampere derating for ambient above 40°C , refer to Westinghouse.
- ② For high fault current levels a fixed instantaneous override is provided at 20,000A (Tolerance $\pm 15\%$).
- ③ The end of the curve is determined by the interrupting rating of the circuit breaker. See above tabulation.
- ④ Seltronic trip units are suitable for functional field testing with test kit Cat. No. STK2. For field testing using primary injection methods, follow NEMA publication AB-4-1990.
- ⑤ Not UL/CSA Listed.
- ⑥ For ground fault time-current curves see SC-4412-88B.





CURRENT IN AMPERES

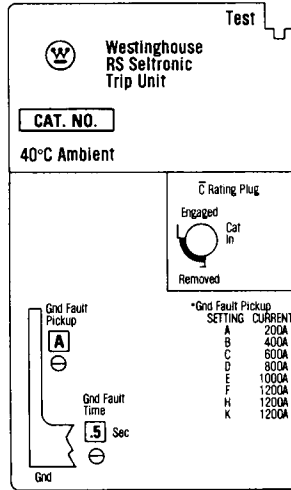
Application Data 29-167D
AB DE-ION® Circuit Breakers

FRED #
441288

Circuit Breaker Time/Current Curves (Ground Current) ③

Series C® — Types RD/RDC
Equipped with Type RS Seltronic Trip Units for Ground Fault Protection

For use with Trip Unit Cat. Nos.:
1600A Max. RS31600TG
2000A Max. RS32000TG
RS31600TAG RS32000TAG



1. Curve accuracy applies from -20°C to +55°C Ambient.
2. Seltronic trip units are suitable for functional field testing with Test Kit Cat. No. STK2. For field testing using primary injection methods, follow NEMA publication AB-4-1990.
3. For phase time-current curves see SC-4410-88C and SC-4411-88C.

Ground Fault Pickup Settings
(Tolerance ± 10% Except, ± 20% on 200 A. Setting)

.5 SEC
.3 SEC
.15 SEC
I

