

F-Frame

Contents

Description	Page
Product Description . . . . .	12-19
Technical Data and Specifications . . . . .	12-19
Dimension/Weights . . . . .	12-20
Product Selection . . . . .	12-20

F-Frame



Typical F-Frame Breaker

Product Description

- All F-Frame Circuit Breakers are HACR rated.
- All circuit breakers 10 through 50 amperes are suitable for HID (high intensity discharge) use.
- All F-Frame circuit breakers are suitable for reverse feed use.

Technical Data and Specifications

Table 12-28. UL489 Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes) (kA)					
		Volts AC (50/60 Hz)				Volts DC ①	
		240	277	480	600	125	250 ②③
ED	2, 3	65	—	—	—	10	—
EDH	2, 3	100	—	—	—	10	—
EDC	2, 3	200	—	—	—	10	—
EHD	1	—	14	—	—	10	—
	2, 3	18	—	14	—	—	10
FDB	2, 3, 4	18	—	14	14	—	10
FD	1	—	25	—	—	10	—
	2, 3, 4	65	—	25	18	—	10
HFD	1	—	65	—	—	10	—
	2, 3, 4	100	—	65	25	—	22
FDC	2, 3, 4	200	—	100	35	—	22

- ① DC ratings apply to substantially non-inductive circuits.
- ② 2-pole circuit breaker, or two poles of 3-pole circuit breaker.
- ③ Time constant is 3 milliseconds minimum at 10 kA and 8 milliseconds minimum at 22 kA.

Table 12-29. IEC 157-1 (P1) Interrupting Capacity Ratings (P1)

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes) (kA)					
		Volts AC (50/60 Hz)				Volts DC ④	
		220, 240	380, 415	440	500	125	250 ⑤⑥
ED	2, 3	65	—	—	—	10	—
EDH	2, 3	100	—	—	—	10	—
EDC	2, 3	200	—	—	—	10	—
FDB	2, 3, 4	18	14	14	14	—	10
FD	1	25	—	—	—	10	—
	2, 3, 4	65	35	35	18	—	10
HFD	1	65	—	—	—	10	—
	2, 3, 4	100	65	65	25	—	22
FDC	2, 3, 4	200	100	100	35	—	22

- ④ DC ratings apply to substantially non-inductive circuits.
- ⑤ 2-pole circuit breaker, or two poles of 3-pole circuit breaker.
- ⑥ Time constant is 3 milliseconds minimum at 10 kA and 8 milliseconds minimum at 22 kA.

F-Frame

**Dimensions/Weights**

**Table 12-30. Dimensions in Inches (mm)**

Number of Poles	Width	Height	Depth
1	1.375 (35)	6 (152)	3.375 (86)
2	2.75 (70)	6 (152)	3.375 (86)
3	4.125 (105)	6 (152)	3.375 (86)
4	5.5 (140)	6 (152)	3.375 (86)

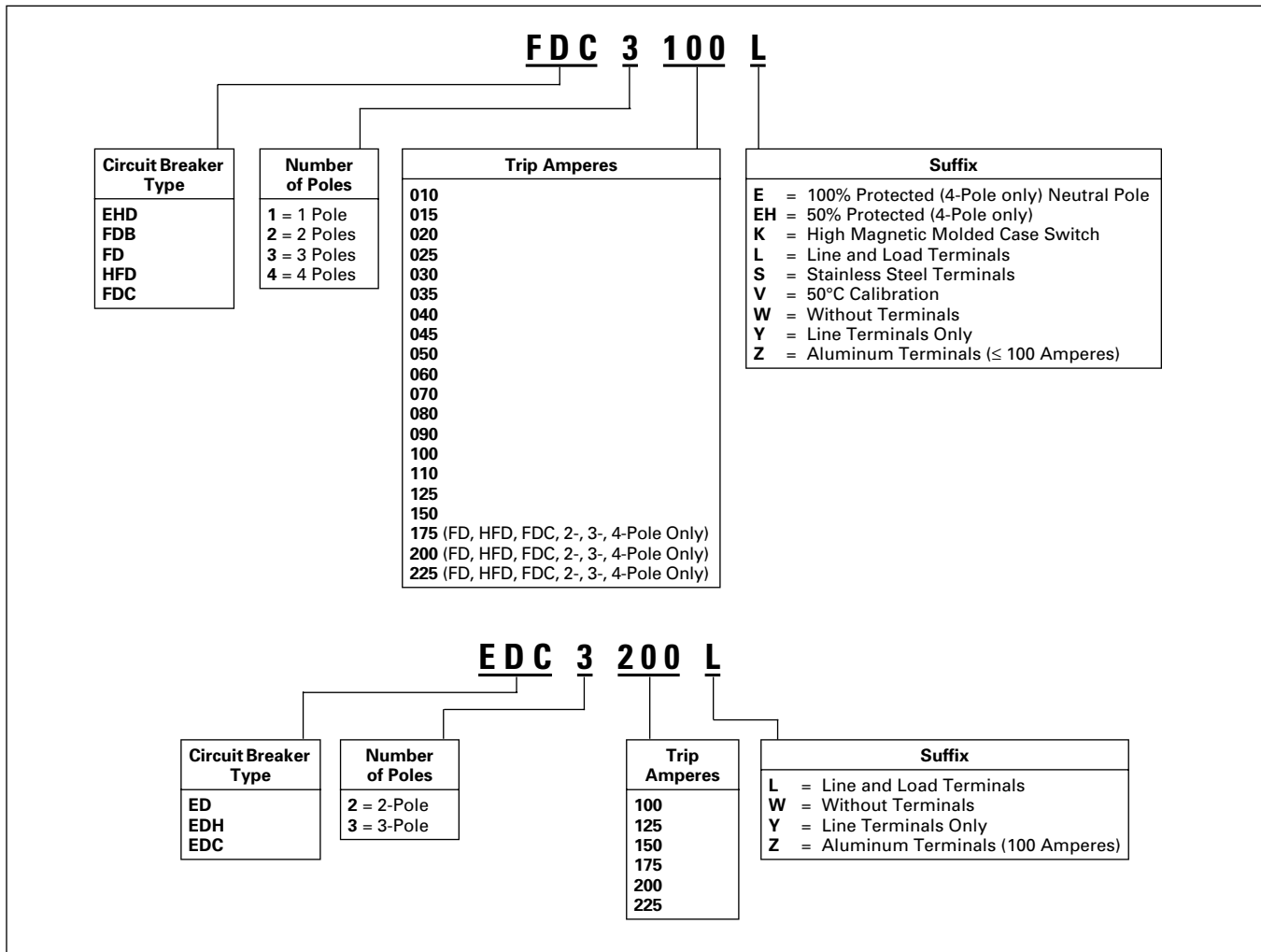
**Table 12-31. Approximate Shipping Weight, Lbs. (Kg)**

Breaker Type	Number of Poles			
	1	2	3	4
ED, EDH, EDC	—	3 (1.361)	4.5 (2.041)	—
EHD, FDB, FD, HFD, FDC	2 (.907)	3 (1.361)	4.5 (2.041)	6 (2.721)

**Product Selection**

This information is presented only as an aid to understanding Catalog Numbers. It is not to be used to build Catalog Numbers for circuit breakers or trip units.

**Table 12-32. Circuit Breaker Catalog Numbering System**



F-Frame

**Table 12-35. Type FD Thermal-Magnetic Circuit Breakers with Non-interchangeable Trip Units**

Max. Cont. Ampere Rating @ 40°C	600V AC Maximum, 250V DC						277V AC Maximum, 125V DC		600V AC Maximum, 250V DC							
	14 kAIC @ 600V AC						25 kAIC @ 277V AC		25 kAIC @ 480V AC							
	Type FDB (Includes Terminals on Load End Only)												Type FD (Includes Terminals on Load End Only)			
	2-Pole		3-Pole		4-Pole		1-Pole		2-Pole		3-Pole		4-Pole			
Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$			
10 ①	FDB2010	435.	FDB3010	570.	FDB4010	910.	FD1010	299.	—	—	—	—	—			
15	FDB2015	435.	FDB3015	570.	FDB4015	910.	FD1015 ②	299.	FD2015	735.	FD3015	865.	FD4015	1,360.		
20	FDB2020	435.	FDB3020	570.	FDB4020	910.	FD1020 ②	299.	FD2020	735.	FD3020	865.	FD4020	1,360.		
25	FDB2025	435.	FDB3025	570.	FDB4025	910.	FD1025	299.	FD2025	735.	FD3025	865.	FD4025	1,360.		
30	FDB2030	435.	FDB3030	570.	FDB4030	910.	FD1030	299.	FD2030	735.	FD3030	865.	FD4030	1,360.		
35	FDB2035	435.	FDB3035	570.	FDB4035	910.	FD1035	299.	FD2035	735.	FD3035	865.	FD4035	1,360.		
40	FDB2040	435.	FDB3040	570.	FDB4040	910.	FD1040	299.	FD2040	735.	FD3040	865.	FD4040	1,360.		
45	FDB2045	393.	FDB3045	570.	FDB4045	910.	FD1045	299.	FD2045	735.	FD3045	865.	FD4045	1,360.		
50	FDB2050	435.	FDB3050	570.	FDB4050	910.	FD1050	299.	FD2050	735.	FD3050	865.	FD4050	1,360.		
60	FDB2060	435.	FDB3060	570.	FDB4060	1,110.	FD1060	299.	FD2060	735.	FD3060	865.	FD4060	1,360.		
70	FDB2070	565.	FDB3070	695.	FDB4070	1,110.	FD1070	335.	FD2070	855.	FD3070	975.	FD4070	1,495.		
80	FDB2080	565.	FDB3080	695.	FDB4080	1,110.	FD1080	335.	FD2080	855.	FD3080	975.	FD4080	1,495.		
90	FDB2090	565.	FDB3090	695.	FDB4090	1,110.	FD1090	335.	FD2090	855.	FD3090	975.	FD4090	1,495.		
100	FDB2100	565.	FDB3100	695.	FDB4100	1,110.	FD1100	335.	FD2100	855.	FD3100	975.	FD4100	1,495.		
110	FDB2110	1,260.	FDB3110	1,565.	FDB4110	2,495.	FD1110	760.	FD2110	1,915.	FD3110	2,205.	FD4110	3,080.		
125	FDB2125	1,260.	FDB3125	1,565.	FDB4125	2,495.	FD1125	760.	FD2125	1,915.	FD3125	2,205.	FD4125	3,080.		
150	FDB2150	1,260.	FDB3150	1,565.	FDB4150	2,495.	FD1150	760.	FD2150	1,915.	FD3150	2,205.	FD4150	3,080.		
175	—	—	—	—	—	—	—	—	FD2175	1,920.	FD3175	2,205.	FD4175	3,080.		
200	—	—	—	—	—	—	—	—	FD2200	1,920.	FD3200	2,205.	FD4200	3,080.		
225	—	—	—	—	—	—	—	—	FD2225	1,920.	FD3225	2,205.	FD4225	3,080.		

① Not UL listed. 5 kAIC interrupting rating.  
② UL listed for SWD applications, see NEC Article 240-83 (d).

Note: Instruction Leaflet/FRED Number 29C101

**Table 12-36. Types HFD and FDC Thermal-Magnetic Circuit Breakers with Non-interchangeable Trip Units**

Max. Cont. Ampere Rating @ 40°C	277V AC Maximum, 125V DC						600V AC Maximum, 250V DC						600V AC Maximum, 250V DC					
	65 kAIC @ 277V AC						65 kAIC @ 480V AC						100 kAIC @ 480V AC					
	Type HFD (Includes Terminals on Load End Only)												Type FDC Current Limiting (Includes Terminals on Load End Only)					
	1-Pole		2-Pole		3-Pole		4-Pole		2-Pole		3-Pole		4-Pole					
Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$					
15	HFD1015 ③	366.	HFD2015	885.	HFD3015	1,140.	HFD4015	1,940.	FDC2015	1,325.	FDC3015	1,710.	FDC4015	2,910.				
20	HFD1020 ③	366.	HFD2020	885.	HFD3020	1,140.	HFD4020	1,940.	FDC2020	1,325.	FDC3020	1,710.	FDC4020	2,910.				
25	HFD1025	366.	HFD2025	885.	HFD3025	1,140.	HFD4025	1,940.	FDC2025	1,325.	FDC3025	1,710.	FDC4025	2,910.				
30	HFD1030	366.	HFD2030	885.	HFD3030	1,140.	HFD4030	1,940.	FDC2030	1,325.	FDC3030	1,710.	FDC4030	2,910.				
35	HFD1035	366.	HFD2035	885.	HFD3035	1,140.	HFD4035	1,940.	FDC2035	1,325.	FDC3035	1,710.	FDC4035	2,910.				
40	HFD1040	366.	HFD2040	885.	HFD3040	1,140.	HFD4040	1,940.	FDC2040	1,325.	FDC3040	1,710.	FDC4040	2,910.				
45	HFD1045	366.	HFD2045	885.	HFD3045	1,140.	HFD4045	1,940.	FDC2045	1,325.	FDC3045	1,710.	FDC4045	2,910.				
50	HFD1050	366.	HFD2050	885.	HFD3050	1,140.	HFD4050	1,940.	FDC2050	1,325.	FDC3050	1,710.	FDC4050	2,910.				
60	HFD1060	366.	HFD2060	885.	HFD3060	1,140.	HFD4060	1,940.	FDC2060	1,325.	FDC3060	1,710.	FDC4060	2,910.				
70	HFD1070	427.	HFD2070	1,130.	HFD3070	1,140.	HFD4070	2,445.	FDC2070	1,690.	FDC3070	2,095.	FDC4070	3,600.				
80	HFD1080	427.	HFD2080	1,130.	HFD3080	1,140.	HFD4080	2,445.	FDC2080	1,690.	FDC3080	2,095.	FDC4080	3,600.				
90	HFD1090	428.	HFD2090	1,130.	HFD3090	1,140.	HFD4090	2,445.	FDC2090	1,690.	FDC3090	2,095.	FDC4090	3,600.				
100	HFD1100	427.	HFD2100	1,130.	HFD3100	1,140.	HFD4100	2,445.	FDC2100	1,690.	FDC3100	2,095.	FDC4100	3,600.				
110	HFD1110	1,001.	HFD2110	2,510.	HFD3110	3,120.	HFD4110	4,405.	FDC2110	3,780.	FDC3110	4,685.	FDC4110	6,610.				
125	HFD1125	1,001.	HFD2125	2,510.	HFD3125	3,120.	HFD4125	4,405.	FDC2125	3,780.	FDC3125	4,685.	FDC4125	6,610.				
150	HFD1150	1,005.	HFD2150	2,510.	HFD3150	3,120.	HFD4150	4,405.	FDC2150	3,780.	FDC3150	4,685.	FDC4150	6,610.				
175	—	—	HFD2175	2,720.	HFD3175	3,120.	HFD4175	4,370.	FDC2175	3,780.	FDC3175	4,685.	FDC4175	6,610.				
200	—	—	HFD2200	2,720.	HFD3200	3,120.	HFD4200	4,370.	FDC2200	3,780.	FDC3200	4,685.	FDC4200	6,610.				
225	—	—	HFD2225	2,720.	HFD3225	3,120.	HFD4225	4,370.	FDC2225	3,780.	FDC3225	4,685.	FDC4225	6,610.				

③ UL listed for SWD applications, see NEC Article 240-83(d).

Note: Instruction Leaflet/FRED Number 29C101

Discount Symbol ..... CB-2



For more information contact Cutler-Hammer at: [www.ch.cutler-hammer.com/catalog](http://www.ch.cutler-hammer.com/catalog)

CAT.200.01.T.E