

Series C® F-Frame



Typical Series C F-Frame Breaker

- All Series C 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.

Interrupting Capacity Ratings

UL489 Interrupting Capacity Ratings

| Circuit Breaker Type | Number of Poles | Interrupting Capacity (Symmetrical Amperes) (kA) | | | | | | Page Number |
|----------------------|-----------------|--|-----|-----|-----|-----------------------|-------------------|-------------|
| | | Volts Ac (50/60 Hz) | | | | Volts Dc ^① | | |
| | | 240 | 277 | 480 | 600 | 125 | 250 ^{②③} | |
| ED | 2, 3 | 65 | — | — | — | 10 | — | 32 |
| EDH | 2, 3 | 100 | — | — | — | 10 | — | 32 |
| EDC | 2, 3 | 200 | — | — | — | 10 | — | 32 |
| EHD | 1 | — | 14 | — | — | 10 | — | 32 |
| | 2, 3 | 18 | — | 14 | — | — | 10 | 32 |
| FDB | 2, 3, 4 | 18 | — | 14 | 14 | — | 10 | 32 |
| FD | 1 | — | 25 | — | — | 10 | — | 32 |
| | 2, 3, 4 | 65 | — | 25 | 18 | — | 10 | 32 |
| HFD | 1 | — | 65 | — | — | 10 | — | 33 |
| | 2, 3, 4 | 100 | — | 65 | 25 | — | 22 | 33 |
| FDC | 2, 3, 4 | 200 | — | 100 | 35 | — | 22 | 33 |

IEC 157-1 (P1) Interrupting Capacity Ratings (P1)

| Circuit Breaker Type | Number of Poles | Interrupting Capacity (Symmetrical Amperes) (kA) | | | | | | Page Number |
|----------------------|-----------------|--|----------|-----|-----|-----------------------|-------------------|-------------|
| | | Volts Ac (50/60 Hz) | | | | Volts Dc ^① | | |
| | | 220, 240 | 380, 415 | 440 | 500 | 125 | 250 ^{②③} | |
| ED | 2, 3 | 65 | — | — | — | 10 | — | 32 |
| EDH | 2, 3 | 100 | — | — | — | 10 | — | 32 |
| EDC | 2, 3 | 200 | — | — | — | 10 | — | 32 |
| FDB | 2, 3, 4 | 18 | 14 | 14 | 14 | — | 10 | 32 |
| FD | 1 | 25 | — | — | — | 10 | — | 32 |
| | 2, 3, 4 | 65 | 35 | 35 | 18 | — | 10 | 32 |
| HFD | 1 | 65 | — | — | — | 10 | — | 33 |
| | 2, 3, 4 | 100 | 65 | 65 | 25 | — | 22 | 33 |
| FDC | 2, 3, 4 | 200 | 100 | 100 | 35 | — | 22 | 33 |

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.

Series C® F-Frame

Types ED, EDH, and EDC Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units Suitable for Reverse Feed

| | | | | | | |
|---|--|--------|--------------------|---------|---------------------------|---------|
| Maximum Continuous Ampere Rating @ 40°C | 240 Vac Maximum, 125 Vdc | | | | | |
| | 65 kAIC @ 240 Vac | | 100 kAIC @ 240 Vac | | 200 kAIC @ 240 Vac | |
| | Type ED | | Type EDH | | Type EDC Current Limiting | |
| | 2-Pole | 3-Pole | 2-Pole | 3-Pole | 2-Pole | 3-Pole |
| | Catalog Number (Includes Terminals on Load End Only) | | | | | |
| 100 | ED2100 | ED3100 | EDH2100 | EDH3100 | EDC2100 | EDC3100 |
| 125 | ED2125 | ED3125 | EDH2125 | EDH3125 | EDC2125 | EDC3125 |
| 150 | ED2150 | ED3150 | EDH2150 | EDH3150 | EDC2150 | EDC3150 |
| 175 | ED2175 | ED3175 | EDH2175 | EDH3175 | EDC2175 | EDC3175 |
| 200 | ED2200 | ED3200 | EDH2200 | EDH3200 | EDC2200 | EDC3200 |
| 225 | ED2225 | ED3225 | EDH2225 | EDH3225 | EDC2225 | EDC3225 |

Instruction Leaflet/FRED Number 29C101

Type EHD Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units

| | | | | |
|---|--|---------|--------------------------|--|
| Maximum Continuous Ampere Rating @ 40°C | 277 Vac Maximum, 125 Vdc | | 480 Vac Maximum, 250 Vdc | |
| | 14 kAIC @ 277 Vac | | 14 kAIC @ 480 Vac | |
| | Type EHD | | | |
| | 1-Pole | 2-Pole | 3-Pole | |
| | Catalog Number (Includes Terminals on Load End Only) | | | |
| 10 ^① | EHD1010 | EHD2010 | EHD3010 | |
| 15 | EHD1015 ^② | EHD2015 | EHD3015 | |
| 20 | EHD1020 ^② | EHD2020 | EHD3020 | |
| 25 | EHD1025 | EHD2025 | EHD3025 | |
| 30 | EHD1030 | EHD2030 | EHD3030 | |
| 35 | EHD1035 | EHD2035 | EHD3035 | |
| 40 | EHD1040 | EHD2040 | EHD3040 | |
| 45 | EHD1045 | EHD2045 | EHD3045 | |
| 50 | EHD1050 | EHD2050 | EHD3050 | |
| 60 | EHD1060 | EHD2060 | EHD3060 | |
| 70 | EHD1070 | EHD2070 | EHD3070 | |
| 80 | EHD1080 | EHD2080 | EHD3080 | |
| 90 | EHD1090 | EHD2090 | EHD3090 | |
| 100 | EHD1100 | EHD2100 | EHD3100 | |

Instruction Leaflet/FRED Number 29C101

Type FD Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units

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

Instruction Leaflet/FRED Number 29C101

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

Series C® F-Frame

Line and Load Terminals

Line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. Except as noted, terminals comply with Underwriters Laboratories, Inc., Standards UL486A and UL486B. Unless otherwise specified, F-frame circuit breakers

are factory equipped with load terminals only.

Ordering Information

F-frame circuit breakers and molded case switches have load terminals only as standard equipment. When standard line-end terminals (same as

standard load-end terminals) are required, add suffix L to the circuit breaker catalog number. When non-standard or optional line and/or load terminals are required, order by style number. Specify if factory installation is required.

Line and Load Terminals

| Maximum Breaker Amperes | Terminal Body Material | Wire Type | AWG Wire Range | Metric Wire Range mm ² | Package of 3 Terminals |
|---|------------------------|-----------|----------------|-----------------------------------|------------------------|
| | | | | | Catalog Number |
| Standard Pressure Type Terminals | | | | | |
| 20 (EHD) | Steel | Cu/Al | #14-#10 | 2.5-4 | 3T20FB ① |
| 100 | Steel | Cu/Al | #14-1/0 | 2.5-50 | 3T100FB |
| 225 | Aluminum | Cu/Al | #14-4/0 | 25-95 | 3TA225FD |
| Optional Pressure Terminals | | | | | |
| 50 | Aluminum | Cu/Al | #14-#4 | 2.5-16 | 3TA50FB ① |
| 100 | Aluminum | Cu/Al | #14-1/0 | 2.5-50 | 3TA100FD |
| 200 | Stainless Steel | Cu | #4-4/0 | 25-95 | 3T150FB |
| 225 | Aluminum | Cu/Al | #6-300 kcmil | 16-150 | 3TA225FDK ② |



Assemble wire clamp to bottom of conductor as shown.



Insert collar enclosing conductor as shown. Locate nut on top of conductor and tighten securely with screw and washer. Caution: Collar must surround conductor.



Insert collar enclosing conductor and center on extrusion on collar. Install clip with legs on top of conductor and snap end around bottom of collar.



Assemble collar on top of conductor as shown. Tighten securely with screw and washer.



Collar slides onto conductor and is held in position by a screw and lockwasher.



Assemble collar on top of conductor as shown. Tighten securely with screw and washer. Terminal shield must be used with this collar.

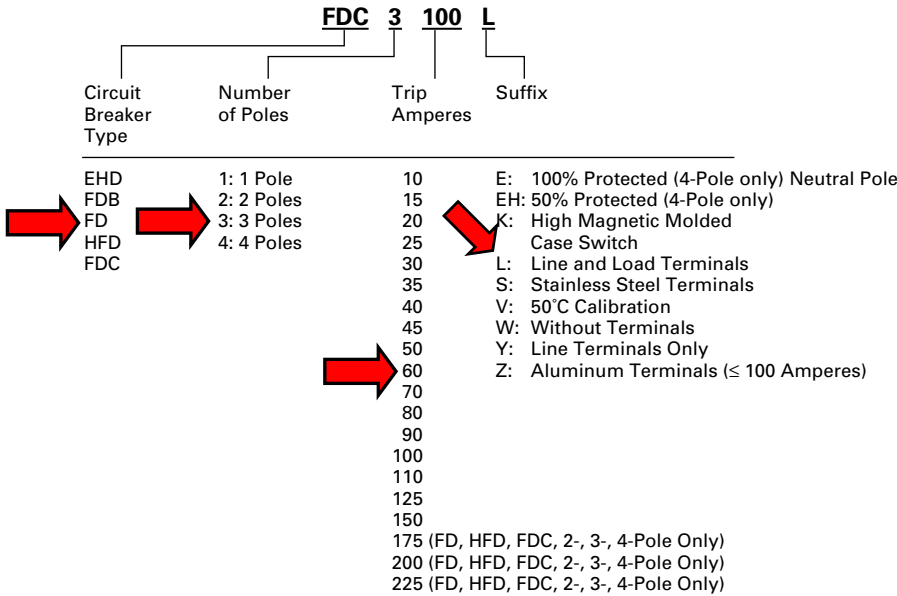
① Not for use with ED, EDH, EDC breakers.

② Includes terminal shield kit. Adds approximately 3 inches to breaker height. Available for use on 3-pole breaker only.

Catalog Numbering System

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.

Circuit Breaker Catalog Number



Dimensions/Weights

Dimensions, 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) |

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) |

Series C® F-Frame

Allowable Accessory Combinations

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

| | Reference Page | 1-Pole | | 2-Pole | | 3-Pole | | | 4-Pole | | | |
|---|----------------|--------|--|--------|-------|--------|--------|-------|--------|--------|-------|------|
| | | Center | | Left | Right | Left | Center | Right | Left | Center | Right | Neu. |
| Internal Accessories | | | | | | | | | | | | |
| Alarm Lockout Switch (Make Only) | 139 | ■ | | | | | | | | | | |
| Alarm Lockout (Make/Break) | 139 | | | | ■ | □ | | □ | | ■ | | |
| Alarm Lockout (2Make/2Break) | 139 | | | | ■ | □ | | □ | | ■ | | |
| Auxiliary Switch (1A, 1B) | 142 | | | | ■ | | | ■ | | ■ | | ■ |
| Auxiliary Switch (2A, 2B) | 142 | | | | ■ | | | ■ | | ■ | | ■ |
| Auxiliary Switch and Alarm Switch Combination | 145 | | | | ■ | □ | | □ | | ■ | | |
| Shunt Trip – Standard | 148 | | | | ■ | | | ■ | | ■ | | ■ |
| Shunt Trip – Low Energy | 152 | | | | ■ | | | ■ | | ■ | | |
| Undervoltage Release Mechanism | 154 | | | | ■ | | | ■ | | ■ | | |

External Accessories

| | | | | | | | | | | | | |
|--|-----|---|--|--|---|---|--|---|--|---|--|---|
| End Cap Kit | 161 | | | | ● | | | ● | | | | ● |
| Keeper Nut | 161 | ● | | | ● | | | ● | | | | ● |
| Control Wire Terminal Kit | 162 | ● | | | ● | | | ● | | | | ● |
| Multiwire Connectors | 162 | ● | | | ● | | | ● | | | | ● |
| Base Mounting Hardware | 163 | ● | | | ● | | | ● | | | | ● |
| Terminal Shields | 165 | ● | | | ● | | | ● | | | | ● |
| Terminal End Covers | 166 | | | | | | | ● | | | | |
| Interphase Barriers | 166 | | | | ● | | | ● | | | | ● |
| Non-Padlockable Handle Block | 168 | ■ | | | ■ | | | ■ | | | | ■ |
| Snap-on Padlockable Handle Lock Hasp | 168 | ■ | | | ■ | | | ■ | | | | ■ |
| Padlockable Handle Lock Hasp | 169 | | | | | ■ | | ■ | | □ | | □ |
| Cylinder Lock | 169 | | | | | | | ■ | | | | |
| Key Interlock Kit | 170 | | | | | ■ | | ■ | | □ | | □ |
| Sliding Bar Interlock – Requires Two Breakers | 171 | | | | | | | ● | | | | |
| Walking Beam Interlock – Requires Two Breakers | 171 | | | | | | | ● | | | | ● |
| Electrical (Solenoid) Operator | 172 | | | | | | | ● | | | | ● |
| Plug-in Adapters | 174 | | | | ● | | | ● | | | | ● |
| Rear Connecting Studs | 175 | ● | | | ● | | | ● | | | | ● |
| Panelboard Connecting Straps | 177 | ● | | | ● | | | ● | | | | ● |
| Handle Mechanisms | 178 | | | | | | | ● | | | | |
| Door Hardware/Accessories | 182 | | | | | | | ● | | | | ● |
| LFD Current Limiter | 183 | | | | | | | ● | | | | |
| IQ Energy Sentinel | 184 | | | | ● | | | ● | | | | |

Modifications (Refer to Cutler-Hammer)

| | | | | | | | | | | | | |
|--------------------------------|-----|---|--|--|---|--|--|---|--|--|--|---|
| Special Calibration | 186 | ● | | | ● | | | ● | | | | ● |
| Moisture Fungus Treatment | 186 | ● | | | ● | | | ● | | | | ● |
| Freeze-Tested Circuit Breakers | 186 | ● | | | ● | | | ● | | | | ● |
| Marine Application | 186 | ● | | | ● | | | ● | | | | ● |

■ Applicable in indicated pole position

□ May be mounted on left or right pole – not both

● Accessory available/Modification available



AB DE-ION Circuit Breakers
Types EHD, FDB, FD and HFD 60 Amperes

