

PowerPact™ M-, P- and R-Frame, and Compact™ NS630b–NS3200 Circuit Breakers

Section 1—General Information

Enclosure Sizes

All type ET electronic trip UL/IEC M-frame, P-frame and R-frame circuit breakers are available as standard rated circuit breakers. Micrologic electronic trip UL/IEC circuit breakers are also available in 100% rated constructions. Because the additional heat generated when applying circuit breakers at 100% of continuous current rating, the use of specially designed enclosures and 194° F (90°C) rated wire sized per the 167° F (75°C) NEC chart is required.

Circuit breakers with 100% rating can also be used in applications requiring only 80% continuous loading.

Table 5: Minimum Enclosure Sizes for Fixed-Mounted Circuit Breakers

Circuit Breaker Rating	Enclosure Dimensions (h x w x d) in./ (mm)		Ventilation Area			
	3P Circuit Breaker	4P Circuit Breaker	Top		Bottom	
M-Frame, ≤ 800 A, Standard Rated	51.9 x 20.25 x 7.75 (1318.3 x 514.4 x 196.9)	51.9 x 23.01 x 7.75 (1318.3 x 584.4 x 196.9)	—	—	—	—
P-Frame, ≤ 800 A, 100% Rated P-Frame, ≤ 1200 A, Standard Rated	51.9 x 20.25 x 7.75 (1318.3 x 514.4 x 196.9)	51.9 x 23.01 x 7.75 (1318.3 x 584.4 x 196.9)	—	—	—	—
P-Frame, ≤ 1200 A, 100% Rated	62.25 x 23 x 14.75 (1581.2 x 584.2 x 374.7)	62.25 x 25.76 x 14.75 (1581.2 x 654.2 x 374.7)	16.5 in.	10,645 mm	16.5 in.	10,645 mm
R-Frame, Standard Rated ¹	30 x 21 x 7 (762 x 533 x 178)	30 x 25.5 x 7 (762 x 648 x 178)	—	—	—	—
R-Frame, 100% Rated ¹	30 x 21 x 7 (762 x 533 x 178)	30 x 25.5 x 7 (762 x 648 x 178)	40.25 in.	26,000 mm	40.25 in.	26,000 mm

¹ RLTB or RL3TB kits may extend beyond end of enclosure when using minimum enclosure size.

Operating Conditions

Temperature

To meet the requirements of the UL489 Standard, molded case circuit breakers are designed, built and calibrated for use on 50/60 Hz ac systems in a 40°C (104°F) ambient environment. Electronic trip circuit breakers, however, are designed to react only to the magnitude of the current flowing through the circuit breaker and are inherently ambient insensitive. Both UL/IEC and IEC-only circuit breakers may be operated at temperatures between -25°C and +70°C (-13°F and 158°F). For temperatures other than 40°C (104°F), the circuit breakers must be re-rated as shown.

Table 6: Temperature Re-rating Values

Maximum Ambient Temperature													
°F	158	140	122	104	86	77	68	50	32	14	-4	-13	-22
°C	70	60	50	40	30	25	20	10	0	-10	-20	-25	-30
Current	0.75	0.83	0.92	1.00	1.07	1.11	1.14	1.21	1.27	1.33	1.39	1.42	1.44

Altitude

Circuit breakers are suitable for use at altitudes up to 13,100 ft. (4000 m). For altitudes higher than 6560 ft. (2000 m), circuit breakers must be derated as shown.

Table 7: Altitude Derating Values Per ANSI C37.20.1 Table 10

Altitude	≤ 6,600 ft. (≤ 2,000 m)	8,500 ft. (2,600 m)	13,000 ft. (3,900 m)
Voltage	1.00	0.95	0.80
Current	1.00	0.99	0.96