

# Reliable branch circuit and motor protection



Motor protection circuit breakers (MPCBs) provide UL® 489 branch circuit protection and UL 508 and CSA® C22.2 No. 14 motor protection, and meet IEC 60947-2 and 60947-4 requirements. Typical branch motor loads are protected by three-component starters, consisting of breaker, contactor and overload relay, or fuse, contactor and overload relay. The MPCB application-specific protection eliminates the need for motor overload relay found in the traditional three-component starter assembly. The branch motor load protection is simplified to an MPCB and contactor, reducing both space requirements and heat generation in customer panels. Protection is provided by application-specific electronic trip units.



The electronic trip unit provides typical motor overload relay functionality and short-circuit protection against potential phase-to-phase or phase-to-ground faults.

- Disconnecting means
- Branch circuit short-circuit protection
- Overload protection
  - Class 10, 20 and 30 motor protection
- Phase unbalance protection
  - Active when the maximum phase current is greater than 50% of FLA setting
  - Breaker will trip when minimum phase current is 75% or less than the maximum phase current for a period of 5 seconds
- FDMP breaker trips when there is a 40% difference between any phase compared to the calculated three-phase average
- Phase loss protection
  - Active when the maximum phase current is greater than 50% of FLA setting
  - Breaker will trip when minimum phase current is 25% or less than the maximum phase current
  - Time delay of 1 or 2 seconds before breaker trips
- Thermal memory to prevent immediate restart after overload trip to allow motor to cool down
- High load alarm LED status indicator
- Optional pre-detection relay energizes at 85% of FLA setting. Acts as seal in contact for three-wire control of motor contactor. Drops contactor out of circuit instead of tripping breaker. Reduces downtime by eliminating need to reset breaker to start motor after overload condition is removed



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The MPCB is based on the Series C® F-Frame and Series G® J- and L-Frames. Accessories for standard Series C and Series G breakers apply to the MPCB. Unlike motor circuit protectors (MCPs), MPCBs are UL 489 listed with 35 kA and 65 kA interruption ratings.

## Specifications

Feature	FDMP	HFDMP	JGMPS	JGMPH	LGMPs	LGMPH
Interruption rating at 240V	65 kA	100 kA	85 kA	100 kA	85 kA	100 kA
Interruption rating at 480V	35 kA	65 kA	35 kA	65 kA	50 kA	65 kA
Interruption rating at 600V	18 kA	25 kA	18 kA	25 kA	25 kA	35 kA
Icu/Ics at 240V	65 kA/33 kA ❶	100 kA/50 kA ❶	85 kA/85 kA	100 kA/100 kA	85 kA/85 kA	100 kA/100 kA
Icu/Ics at 415V	35 kA/18 kA ❶	65 kA/33 kA ❶	40 kA/40 kA	70 kA/53 kA	50 kA/50 kA	70 kA/70 kA
100% rated	No	No	Yes	Yes	Yes	Yes
FLA range (A)	40–205	40–205	20–250	20–250	100–630 ❷	100–630 ❷
Motor class protection	5, 10, 15, 20	5, 10, 15, 20	10, 15, 20, 30	10, 15, 20, 30	10, 15, 20, 30	10, 15, 20, 30
Phase unbalance protection (current)—active for phase current >0.5 FLA setting	—	—	≥25% delta phase-to-phase for 5 seconds	≥25% delta phase-to-phase for 5 seconds	≥25% delta phase-to-phase for 5 seconds	≥25% delta phase-to-phase for 5 seconds
Phase loss protection (current)—active for phase current >0.5 FLA setting	Min. phase ≤ 0.25 max. phase for 1 second	Min. phase ≤ 0.25 max. phase for 1 second	Min. phase ≤ 0.25 max. phase for 1 second	Min. phase ≤ 0.25 max. phase for 1 second	Min. phase ≤ 0.25 max. phase for 1 second	Min. phase ≤ 0.25 max. phase for 1 second
Thermal memory protection	Yes	Yes	Yes	Yes	Yes	Yes
High load indicator	—	—	LED	LED	LED	LED
Pre-detection relays	—	—	Yes	Yes	Yes	Yes
Internal accessories	Factory installed	Factory installed	Field installed	Field installed	Field installed	Field installed
	Aux, alarm, shunt trip, UVR	Aux, alarm, shunt trip, UVR	Aux, alarm, pre-detection relay, shunt trip, UVR	Aux, alarm, pre-detection relay, shunt trip, UVR	Aux, alarm, pre-detection relay, shunt trip, UVR	Aux, alarm, pre-detection relay, shunt trip, UVR

❶ IEC ratings available only on **FWMP** and **HFWMP**.

❷ 630 amperes is not a UL listed rating. 600 amperes is the maximum UL or CSA rating for LG breaker.

Continuous Amperes	35 kA Without Phase Unbalance, Class 10 Motor Protection Only	35 kA With Phase Unbalance and Adjustable Motor Class Protection	65 kA Without Phase Unbalance, Class 10 Motor Protection Only	65 kA With Phase Unbalance and Adjustable Motor Class Protection
80	FDMP3080L	FDMP3080JL	HFDMP3080L	HFDMP3080JL
100	FDMP3100L	FDMP3100JL	HFDMP3100L	HFDMP3100JL
160	FDMP3160L	FDMP3160JL	HFDMP3160L	HFDMP3160JL
205	FDMP3205L	FDMP3205JL	HFDMP3205L	HFDMP3205JL

## JGMP Catalog Numbers

Continuous Amperes (100% Rated)	35 kAIC	65 kAIC
50	JGMPS050G	JGMPH050G
100	JGMPS100G	JGMPH100G
160	JGMPS160G	JGMPH160G
250	JGMPS250G	JGMPH250G

## LGMP Catalog Numbers

Continuous Amperes (100% Rated)	35 kAIC	65 kAIC
250	LGMPs250G	LGMPH250G
400	LGMPs400G	LGMPH400G
600	LGMPs600G	LGMPH600G
630 ❶	LGMPs630G	LGMPH630G

❶ 630 amperes is not a UL listed rating. 600 amperes is the maximum UL or CSA rating for LG breaker.

**Note:** For pre-trip alarm option, order Style Number 5721B31G02 separately.

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