

Motor Circuit Protectors



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Motor Circuit Protectors (MCP)

Product Description

Designated as Eaton’s Types GMCP and HMCP, the instantaneous-only motor circuit protector (MCP) is available in ratings from 3 A to 1200 A for motor starter sizes 0 through 8.

An innovative design of internal components allows higher MCP-starter combination interrupting ratings. The MCP is marked to permit proper electrical application within the assigned equipment ratings.

Standards and Certifications

The MCP is designed to comply with the applicable requirements of Underwriters Laboratories Standard UL 489, Canadian Standards Association Standard C22.2 No. 5.1, and International Electrotechnical Commission Recommendations IEC 157-1.

The MCP is a recognized component (UL File E7819) and complies with the applicable requirements of Underwriters Laboratories Standard UL 489. It is also designed to comply with the applicable requirements of Canadian Standards Association Standard C22.2 No. 5.1, International Electrotechnical Commission Recommendations IEC 157-1, and nameplates bear the CE marking.



Note: Interrupting ratings are dependent on starter it is used with.

Product Selection

G-Frame

2

480 Vac Maximum, 600Y/347 Vac

NEMA Starter Size	Continuous Amperes	Cam Setting	Motor Full Load Current Amperes (FLA) ^①	MCP Trip Setting	MCP Catalog Number
0	3	A	1.1–1.2	15	GMCP003A0C
		B	1.3–1.5	18	
		C	1.6–1.7	21	
		D	1.8–1.9	24	
		E	2.0–2.2	27	
		F	2.3–2.5	30	
0	7	A	2.6–3.1	35	GMCP007C0C
		B	3.2–3.6	42	
		C	3.7–3.9	49	
		D	4.3–4.7	56	
		E	4.8–5.2	63	
		F	5.3–5.7	70	
0	15	A	5.7–6.8	75	GMCP015E0C
		B	6.9–7.9	90	
		C	8.0–9.1	105	
		D	9.2–10.3	120	
		E	10.4–11.4	135	
		F	11.5–12.6	150	
1	30	A	11.5–13.7	150	GMCP030H1C
		B	13.8–16.0	180	
		C	16.1–18.3	210	
		D	18.4–20.6	240	
		E	20.7–22.9	270	
		F	23.0–25.2	300	
2	50	A	19.3–22.9	250	GMCP050K2C
		B	23.0–26.8	300	
		C	26.9–30.6	350	
		D	30.7–34.5	400	
		E	34.6–38.3	450	
		F	38.4–42.1	500	
3	60	A	23.1–27.5	300	GMCP060J2C
		B	27.7–32.2	360	
		C	32.3–36.7	420	
		D	36.9–41.4	480	
		E	41.5–46.0	540	
		F	46.2–50.5	600	
3	63	A	24.2–32.1	320	GMCP063M2C
		B	29.1–34.8	380	
		D	38.8–46.4	500	
		E	43.6–48.9	570	
		F	48.5–53.7	630	

Notes

^① Motor FLA ranges are typical. The corresponding trip setting is at 13 x the minimum FLA value shown. Where a 13 x setting is required for an intermediate FLA value, alternate Cam settings and/or MCP ratings should be used.

All GMCP 3–63A come with line and load steel body terminals for Cu only wire. Refer to **Page V4-T2-226** under Optional Terminal Types.

UL recognized and CSA approved.

Accessories

Modifications for GMCP

Internal accessories must be factory installed.

Internal Accessories ^①

Type Accessory	Electrical Ratings			Contact Arrangement	Factory Suffix	Style Number
	Volts	Frequency	Amperes			
Shunt trip ^②	120	50/60 Hz	1.1	—	S5	1373D62G18
Shunt trip ^②	240	50/60 Hz	2.1	—	S6	1373D62G19
Auxiliary switch ^③	240	50/60 Hz	6.0	1A/1B	A3	1288C74G03
Auxiliary switch ^③	240	50/60 Hz	6.0	2A/2B	A6	1288C73G03
Alarm switch ^③	240	50/60 Hz	6.0	Make/Break	B3	1288C75G03
Auxiliary switch/alarm switch combination ^③	240	50/60 Hz	6.0	1A/1B Make/Break	B13	1288C76G09

External Mounted Accessories



Description	Number Units in Package	Style Number
Lock dog (non-padlockable)	1	1294C01H01
Mounting hardware	1	624B375G23
DIN rail adapter ^④	10	1225C79G02

Modifications for HMCP

See Internal Accessories starting on **Page V4-T2-377**.

Handle Mechanisms for Series C Frames

Kits Only (Kit Includes Shaft, Mechanism and Handle)—GMCP-Frame

Description	Rating Type		GMCP-Frame Catalog Number
	NEMA	IP	
 S01 Blue Handle S01 blue handle, 12-inch shaft	1/3R/12	54	GMHMVD12B / 68C6039G05
	4/4X	65	GMHMVD12BX / 68C6039G07
 S01 Red Handle S01 red handle, 12-inch shaft	1/3R/12	54	GMHMVD12R / 68C6039G06
	4/4X	65	GMHMVD12RX / 68C6039G08

Direct (Close-Coupled) Handle Mechanisms

G Direct ^⑤

Frame	Black Handle		Yellow Handle	
	With Shroud Catalog Number	Without Shroud Catalog Number	With Shroud Catalog Number	Without Shroud Catalog Number
GMCP	HRGMC1S	HRGMC10	HRGMC3S	HRGMC30

Notes

- ① Only one accessory may be installed in GMCP.
- ② LH only.
- ③ RH only.
- ④ For use with standard 35 mm DIN rail such as, 35 x 7.5 or 15 mm per DIN EN50022.
- ⑤ Suitable for use on two- or three-pole G-Frame.

No UVR available on GMCP.

2.4

Molded Case Circuit Breakers

Series C

F-Frame

2

600 Vac Maximum, 250 Vdc Maximum

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ^①	MCP Trip Setting ^②	MCP Catalog Number
0	3	A	0.69–0.91	9	HMCP003A0C
		B	0.92–1.0	12	
		C	1.1–1.2	15	
		D	1.3–1.5	18	
		E	1.6–1.7	21	
		F	1.8–1.9	24	
		G	2.0–2.2	27	
		H	2.3–2.5	30	
0	7	A	1.5–2.0	21	HMCP007C0C
		B	2.1–2.5	28	
		C	2.6–3.1	35	
		D	3.2–3.6	42	
		E	3.7–3.9	49	
		F	4.3–4.7	56	
		G	4.8–5.2	63	
		H	5.3–5.7	70	
0	15	A	3.4–4.5	45	HMCP015E0C
		B	4.6–5.6	60	
		C	5.7–6.8	75	
		D	6.9–7.9	90	
		E	8.0–9.1	105	
		F	9.2–10.3	120	
		G	10.4–11.4	135	
		H	11.5–12.6	150	
1	30	A	6.9–9.1	90	HMCP030H1C
		B	9.2–11.4	120	
		C	11.5–13.7	150	
		D	13.8–16.0	180	
		E	16.1–18.3	210	
		F	18.4–20.6	240	
		G	20.7–22.9	270	
		H	23.0–25.2	300	
2	50	A	11.5–15.2	150	HMCP050K2C
		B	15.3–19.1	200	
		C	19.2–22.9	250	
		D	23.0–26.8	300	
		E	26.9–30.6	350	
		F	30.7–4.5	400	
		G	34.6–38.3	450	
		H	38.4–42.1	500	

600 Vac Maximum, 250 Vdc Maximum, continued

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ^①	MCP Trip Setting ^②	MCP Catalog Number
2	70	A	16.1–21.4	210	HMCP070M2C
		B	21.5–26.8	280	
		C	26.9–32.2	350	
		D	32.3–37.5	420	
		E	37.6–42.9	490	
		F	43.0–48.3	560	
		G	48.4–53.7	630	
		H	53.8–59.1	700	
3	100	A	23.0–30.6	300	HMCP100R3C
		B	30.7–38.3	400	
		C	38.4–46.0	500	
		D	46.1–53.7	600	
		E	53.8–61.4	700	
		F	61.5–69.1	800	
		G	69.2–76.8	900	
		H	76.9–84.5	1000	
4	150	A	34.6–46.0	450	HMCP150T4C
		B	46.1–57.5	600	
		C	57.6–69.1	750	
		D	69.2–80.6	900	
		D	69.2–80.6	900	
		E	80.7–92.2	1050	
		F	92.3–103.7	1200	
		G	103.8–115.2	1350	
4	150	A	57.0–75.0	750	HMCP150U4C
		B	76.0–95.0	1000	
		C	96.0–114.0	1250	
		D	115.0–130.7	1500	
		E	③	1750	
		F	③	2000	
		G	③	2250	
		H	③	2500	

Notes

- ① Motor FLA ranges are typical. The corresponding trip setting is at 13 x the minimum FLA value shown. Where a 13 x setting is required for an intermediate FLA value, alternate Cam settings and/or MCP ratings should be used.
- ② For DC applications, actual trip levels are approximately 40% higher than values shown.
- ③ Settings above 130 amperes are for special applications. NEC Article 430.110(a) requires the ampere rating of the disconnecting means to be not less than 115% of the motor full load ampere rating.

HMCP 3–100 A come with line and load steel body terminals, 3T100FB. HMCP 150A come with line and load steel body terminals, 3T150FB.

Special Low Magnetic Protection Application MCP**600 Vac Maximum, 250 Vdc Maximum**

Cont. Amps	Cam Setting	MCP Trip Setting ^①	MCP Catalog Number
25	A	40	HMCP025D0C
	B	43	
	D	49	
	E	52	
	F	55	
	G	58	
	H	60	
	50	A	
B		87	
C		93	
D		98	
E		103	
F		109	
G		115	
H		120	
70	A	115	HMCP070J2C
	B	122	
	C	130	
	D	139	
	E	145	
	F	153	
	G	160	
	H	170	
100	A	160	HMCP100L3C
	B	174	
	C	185	
	D	196	
	E	207	
	F	218	
	G	229	
	H	240	

Notes

^① For DC applications, actual trip levels are approximately 40% higher than values shown.

HMCP 25–100 A come with line and load steel body terminals, 3T100FB.

2.4

Molded Case Circuit Breakers

Series C

MCPs for Application with Motor Starters Equipped with Electronic Overload Relays

2

600 Vac Maximum, 250 Vdc Maximum

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number
0	3	A	0.69–0.91	9	HMCP5003A0C
		B	0.92–1.0	12	
		C	1.1–1.2	15	
		D	1.3–1.5	18	
		E	1.6–1.7	21	
		F	1.8–1.9	24	
		G	2.0–2.2	27	
		H	2.3–2.5	30	
0	7	A	1.5–2.0	21	HMCP5007C0C
		B	2.1–2.5	28	
		C	2.6–3.1	35	
		D	3.2–3.6	42	
		E	3.7–3.9	49	
		F	4.3–4.7	56	
		G	4.8–5.2	63	
		H	5.3–5.7	70	
0	15	A	3.4–4.5	45	HMCP5015E0C
		B	4.6–5.6	60	
		C	5.7–6.8	75	
		D	6.9–7.9	90	
		E	8.0–9.1	105	
		F	9.2–10.3	120	
		G	10.4–11.4	135	
		H	11.5–12.6	150	
1	30	A	6.9–9.1	90	HMCP5030H1C
		B	9.2–11.4	120	
		C	11.5–13.7	150	
		D	13.8–16.0	180	
		E	16.1–18.3	210	
		F	18.4–20.6	240	
		G	20.7–22.9	270	
		H	23.0–25.2	300	
2	50	A	11.5–15.2	150	HMCP5050K2C
		B	15.3–19.1	200	
		C	19.2–22.9	250	
		D	23.0–26.8	300	
		E	26.9–30.6	350	
		F	30.7–34.5	400	
		G	34.6–38.3	450	
		H	38.4–42.1	500	

600 Vac Maximum, 250 Vdc Maximum, continued

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number
3	100	A	23.0–30.6	300	HMCP5100R3C
		B	30.7–38.3	400	
		C	38.4–46.0	500	
		D	46.1–53.7	600	
		E	53.8–61.4	700	
		F	61.5–69.1	800	
		G	69.2–76.8	900	
		H	76.9–84.5	1000	
4	150	A	34.6–46.0	450	HMCP5150T4C
		B	46.1–57.5	600	
		C	57.6–69.1	750	
		D	69.2–80.6	900	
		E	80.7–92.2	1050	
		F	92.3–103.7	1200	
		G	103.8–115.2	1350	
		H	115.3–126.7	1500	
4	150	A	57.0–75.0	750	HMCP5150U4C
		B	76.0–95.0	1000	
		C	96.0–114.0	1250	
		D	115.0–130.7	1500	
		E	③	1750	
		F	③	2000	
		G	③	2250	
		H	③	2500	

Notes

- ① Motor FLA ranges are typical. The corresponding trip setting is at 13 x the minimum FLA value shown. Where a 13 x setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.
- ② For DC applications, actual trip levels are approximately 40% higher than values shown.
- ③ Settings above 130A are for special applications. NEC Article 430.110(a) requires the ampere rating of the disconnecting means to be not less than 115% of the motor full load ampere rating.

HMCP 25–100 A come with line and load steel body terminals, 3T100FB.

HMCP 3–100 A come with line and load steel body terminals, 3T100FB. HMCP 150A come with line and load steel body terminals, 3T150FB.

J-Frame

600 Vac Maximum, 250 Vdc Maximum

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ^①	MCP Trip Setting ^②	MCP Catalog Number ^③
4	250	A	27.0–30.7	350	HMCP250A5C
		B	30.8–33.8	400	
		C	33.9–36.9	440	
5	250	D	37.0–40.3	480	HMCP250D5C
		E	40.4–43.8	525	
		F	43.9–46.9	570	
		G	47.0–50.7	610	
		H	47.0–50.7	660	
		I	47.0–50.7	700	
		5	250	A	
B	38.9–43.4			505	
C	43.5–47.6			565	
D	47.7–52.2			620	
E	52.3–56.5			680	
F	56.6–60.7			735	
G	60.8–64.9			790	
H	65.0–69.2			845	
I	69.3–73.5			900	
5	250	A	38.5–43.4	500	HMCP250D5C
		B	43.5–48.0	565	
		C	48.1–53.0	625	
		D	53.1–57.6	690	
		E	57.7–62.3	750	
		F	62.4–67.3	810	
		G	67.4–71.9	875	
		H	72.0–76.9	935	
		I	77.0–81.6	1000	
5	250	A	48.1–53.8	625	HMCP250F5C
		B	53.9–59.9	700	
		C	60.0–66.1	780	
		D	66.2–72.3	860	
		E	72.4–78.4	940	
		F	78.5–83.8	1020	
		G	83.9–89.9	1090	
		H	90.0–96.1	1170	
		I	96.2–102.0	1250	
5	250	A	57.7–64.6	750	HMCP250G5C
		B	64.7–71.9	840	
		C	72.0–79.2	935	
		D	79.3–86.5	1030	
		E	86.6–93.8	1125	
		F	93.9–101.1	1220	
		G	101.2–108.4	1315	
		H	108.5–115.3	1410	
		I	115.4–122.4	1500	

600 Vac Maximum, 250 Vdc Maximum, continued

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ^①	MCP Trip Setting ^②	MCP Catalog Number ^③
5	250	A	67.4–75.3	875	HMCP250J5C
		B	75.4–83.8	980	
		C	83.9–92.3	1090	
		D	92.4–100.7	1200	
		E	100.8–109.2	1310	
		F	109.3–117.6	1420	
		G	117.7–126.1	1530	
		H	126.2–134.6	1640	
		I	134.7–142.8	1750	
5	250	A	77.0–86.6	1000	HMCP250K5C
		B	86.6–96.1	1125	
		C	96.2–105.7	1250	
		D	105.8–115.3	1375	
		E	115.4–124.9	1500	
		F	125.0–134.6	1625	
		G	134.7–144.2	1750	
		H	144.3–153.8	1875	
		I	153.9–163.3	2000	
5	250	A	86.6–97.3	1125	HMCP250L5C
		B	97.4–108.4	1265	
		C	108.5–118.8	1410	
		D	118.9–129.9	1545	
		E	130.0–140.7	1690	
		F	140.8–151.5	1830	
		G	151.6–162.3	1970	
		H	162.4–173.0	2110	
		I	173.1–183.6	2250	
5	250	A	96.2–108.0	1250	HMCP250W5C
		B	108.1–119.9	1405	
		C	120.0–132.3	1560	
		D	132.4–144.2	1720	
		E	144.3–156.1	1875	
		F	156.2–168.0	2030	
		G	168.1–179.9	2185	
		H	180.0–192.3	2340	
		I	192.4–204.0	2500	

Notes

^① Motor FLA ranges are typical. The corresponding trip setting is at 13 times the minimum FLA value shown. Where a 13 times setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.

^② For DC applications, actual trip levels are approximately 40% higher than values shown.

^③ Three-pole catalog numbers shown. Two-pole catalog numbers begin with **HM2P** in place of **HMCP**.

All HMCP and HM2P 250A come with line and load steel body terminals, T250KB. (With suffix "C," without "C" comes with TA250KB.)

2.4

Molded Case Circuit Breakers

Series C

K-Frame

2

600 Vac Maximum, 250 Vdc Maximum

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ^①	MCP Trip Setting ^②	MCP Catalog Number ^③
4	400	A	27.0–30.7	350	HMCP400A5C
		B	30.8–33.8	400	
		C	33.9–36.9	440	
5	400	D	37.0–40.3	480	HMCP400A5C
		E	40.4–43.8	525	
		F	43.9–46.9	570	
		G	47.0–50.7	610	
		H	50.8–53.8	660	
		I	53.9–57.2	700	
5	400	A	38.5–43.4	500	HMCP400D5C
		B	43.5–48.0	565	
		C	48.1–53.0	626	
		D	53.1–57.6	690	
		E	57.7–62.3	750	
		F	62.4–67.3	810	
		G	67.4–71.9	875	
		H	72.0–76.9	935	
		I	77.0–81.6	1000	
5	400	A	48.1–53.8	625	HMCP400F5C
		B	53.9–59.9	700	
		C	60.0–66.1	780	
		D	66.2–72.3	860	
		E	72.4–78.4	940	
		F	78.5–83.8	1020	
		G	83.9–89.9	1090	
		H	90.0–96.1	1170	
		I	96.2–102.0	1250	
5	400	A	57.7–64.6	750	HMCP400G5C
		B	64.7–71.9	840	
		C	72.0–79.2	935	
		D	79.3–86.5	1030	
		E	86.6–93.8	1125	
		F	93.9–101.1	1220	
		G	101.2–108.4	1315	
		H	108.5–115.3	1410	
		I	115.4–122.4	1500	
5	400	A	67.4–75.3	875	HMCP400J5C
		B	75.4–83.8	980	
		C	83.9–92.3	1090	
		D	92.4–100.7	1200	
		E	100.8–109.2	1310	
		F	109.3–117.6	1420	
		G	117.7–126.1	1530	
		H	126.2–134.6	1640	
		I	134.7–142.8	1750	

600 Vac Maximum, 250 Vdc Maximum, continued

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ^①	MCP Trip Setting ^②	MCP Catalog Number ^③
5	400	A	77.0–86.5	1000	HMCP400K5C
		B	86.6–96.1	1125	
		C	96.2–105.7	1250	
		D	105.8–115.3	1375	
		E	115.4–124.9	1500	
		F	125.0–134.6	1625	
5	400	G	134.7–144.2	1750	HMCP400L5C
		H	144.3–153.8	1875	
		I	153.9–163.3	2000	
		A	86.6–97.3	1125	
		B	97.4–108.4	1265	
		C	108.5–118.8	1410	
		D	118.9–129.9	1545	
		E	130.0–140.7	1690	
		F	140.8–151.5	1830	
5	400	G	151.6–162.3	1970	HMCP400W5C
		H	162.4–173.0	2110	
		I	173.1–183.6	2250	
		A	96.2–108.0	1250	
		B	108.1–119.9	1405	
		C	120.0–132.3	1560	
		D	132.4–144.2	1720	
		E	144.3–156.1	1875	
		F	156.2–168.0	2030	
5	400	G	168.1–179.9	2185	HMCP400N5C
		H	180.0–192.3	2340	
		I	192.4–204.0	2500	
		A	115.4–129.9	1500	
		B	130.0–144.2	1690	
		C	144.3–158.4	1875	
		D	158.5–173.0	2060	
		E	173.1–187.6	2250	
		F	187.7–201.9	2440	
5	400	G	202.0–216.1	2625	HMCP400O5C
		H	216.2–230.7	2810	
		I	230.8–244.9	3000	

Notes

- ① Motor FLA ranges are typical. The corresponding trip setting is at 13 x the minimum FLA value shown. Where a 13 x setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.
- ② For DC applications, actual trip levels are approximately 40% higher than values shown.
- ③ Three-pole catalog numbers shown. Two-pole catalog numbers begin with **HM2P** in place of **HMCP**.

All HMCP and HM2P 400 A come with aluminum body terminals, 3TA400K. Catalog numbers with suffix "C" as shown above come with copper body terminals 3T400K.

600 Vac Maximum, 250 Vdc Maximum, continued

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number ③
5	400	A	134.7–151.5	1750	HMCP400R5C
		B	151.6–168.4	1970	
		C	168.5–185.3	2190	
		D	185.4–201.9	2410	
		E	202.0–218.8	2625	
		F	218.9–235.7	2845	
		G	235.8–252.6	3065	
		H	252.7–269.2	3285	
		I	269.3–285.7	3500	
5	400	A	153.9–173.0	2000	HMCP400X5C
		B	173.1–192.3	2250	
		C	192.4–211.5	2500	
		D	211.6–230.7	2750	
		E	230.8–249.9	3000	
		F	250.0–269.2	3250	
		G	269.3–288.4	3500	
		H	288.5–307.6	3750	
		I	307.7–326.9	4000	
5	400	A	173.1–194.5	2250	HMCP400Y5C
		B	194.6–216.1	2530	
		C	216.2–237.6	2810	
		D	237.7–259.5	3090	
		E	259.6–281.1	3375	
		F	281.2–302.6	3655	
		G	302.7–324.1	3935	
		H	324.2–346.1	4215	
		I	346.2–368.1	4500	

L-Frame

600 Vac Maximum ④

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting	MCP Catalog Number
6	600	A	138.5–184.5	1800	HMCP600L6W
		B	184.6–230.7	2400	
		C	230.8–276.8	3000	
		D	276.9–323.0	3600	
		E	323.1–369.1	4200	
		F	369.2–415.3	4800	
		G	415.4–461.4	5400	
		H	461.5–507.7	6000	
		6	600	A	
B	46.2–61.4			600	
C	61.5–76.8			800	
D	76.9–96.1			1000	
E	96.2–115.3			1250	
F	115.4–153.7			1500	
G	153.8–192.2			2000	
H	192.3–230.7			2500	
6	600			A	76.9–96.1
		B	96.2–115.3	1250	
		C	115.4–153.7	1500	
		D	153.8–192.2	2000	
		E	192.3–230.7	2500	
		F	230.8–269.1	3000	
		G	269.2–307.6	3500	
		H	307.7–346.1	4000	

Notes

① Motor FLA ranges are typical. The corresponding trip setting is at 13 x the minimum FLA value shown. Where a 13 x setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.

② For DC applications, actual trip levels are approximately 40% higher than values shown.

③ Three-pole catalog numbers shown. Two-pole catalog numbers begin with **HM2P** in place of **HMCP**.

④ Equipped with electronic trip device.

All HMCP and HM2P 400 A come with aluminum body terminals, 3TA400K. Catalog numbers with suffix "C" as shown above come with copper body terminals 3T400K.

All HMCP 600 A come without terminals. For terminals, see **Page V4-T2-321**.

2.4

Molded Case Circuit Breakers

Series C

N-Frame

2

600 Vac Maximum ^①

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ^②	MCP Trip Setting	MCP Catalog Number
7	800	A	123.1–184.5	1600	HMCP800X7W
		B	184.6–246.1	2400	
		C	246.2–307.6	3200	
		D	307.7–369.1	4000	
		E	369.2–430.7	4800	
		F	430.8–492.2	5600	
		G	492.3–553.7	6400	
8	1200	A	184.6–276.8	2400	HMCP12Y8W
		B	276.9–369.1	3600	
		C	369.2–461.4	4800	
		D	461.5–553.7	6000	
		E	553.8–646.1	7200	
		F	646.2–738.4	8400	
		G	738.5–830.7	9600	

Notes

- ① Equipped with electronic trip device.
- ② Motor FLA ranges are typical. The corresponding trip setting is at 13X the minimum FLA value shown. Where a 13X setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.

Motor Protection Circuit Breakers



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Motor Protection Circuit Breakers (MPCB)

Product Description

Motor protection circuit breakers (MPCBs) provide UL 489 branch circuit protection, UL 508 and CSA C22.2 No. 14 motor protection, and meet IEC 60947-2 and 50947-4 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 5, 10, 15 and 20
- Phase unbalance protection
 - 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

The MPCB is based on the Series C F-Frame. Accessories for standard Series C breakers apply to the MPCB. Unlike Motor Circuit Protectors (MCPs), MPCBs are UL 489 listed with 35 kA and 65 kA interruption ratings.

Product Selection

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FDMP and HFDMP

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

FLA Ie Dial Setting

Continuous Amperes	A	B	C	D	E	F	G	H
80	40	50	60	70	80	—	—	—
100	80	—	90	—	100	—	—	—
160	100	115	130	145	160	—	—	—
205	160	170	180	195	205	—	—	—

Technical Data and Specifications

Specifications

Feature	FDMP	HFDMP
Interruption rating at 240 V	65 kA	100 kA
Interruption rating at 480 V	35 kA	65 kA
Interruption rating at 600 V	18 kA	25 kA
Icu/lcs at 240 V	65 kA/33 kA ①	100 kA/50 kA ①
Icu/lcs at 415 V	35 kA/18 kA ①	65 kA/33 kA ①
100% rated	No	No
FLA range (A)	40–205	40–205
Motor class protection	5, 10, 15, 20	5, 10, 15, 20
Phase unbalance protection (current)—active for phase current >0.5 FLA setting	≥ 40% delta (single-phase); (three-phase avg.) for 5 seconds	≥ 40% delta (single-phase); (three-phase avg.) 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
Thermal memory protection	Yes	Yes
High load indicator	—	—
Pre-detection relays	—	—
Internal accessories	Factory installed Aux. alarm, shunt trip, UVR	Factory installed Aux. alarm, shunt trip, UVR

Notes

① IEC ratings available only on FWMP and HFWMP.

For additional breaker solutions, see **Page V4-T2-193**.

Type ELC Current Limiter Attachment



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Type ELC Current Limiter Attachment (Size 0–4)


Product Description

Eaton’s Type ELC current limiter attachment for the MCP is designed to provide increased interrupting capacity. The combination may be used for the application up to 200,000 A symmetrical at 600 Vac, making the MCP suitable for use in network distribution systems or other applications where unusually high fault currents are available. The current limiter connects to the load end of the MCP and is provided with terminals suitable for copper or aluminum conductors. (See table at right.)

Limiters are coordinated with the MCP so that normal fault currents are interrupted automatically by the MCP without any damage to the limiter. Only the rare very high fault is opened by the limiter. Faults that are interrupted by the limiter also magnetically trip the MCP, opening all three poles, preventing single-phase operation.

Each of the three poles of the Type ELC limiter is equipped with an indicator that extends when a fault is interrupted by the limiter.

Product Selection

Type ELC Current Limiter Attachment	ELC Current Limiter Attachment	
	MCP Rating (Amperes)	Catalog Number
	3	ELC3003R
	7	ELC3007R
	15	ELC3015R
	30	ELC3030R
	50	ELC3050R
	100	ELC3100R
	150	ELC3150R

Technical Data and Specifications

Type ELC Current Limiter Terminal Wire Sizes ①

Type ELC Current Limiter Maximum Amperes	Wire Range AWG	Metric (mm ²)
Standard Aluminum Terminals		
50	14–2	2.5–35
100	1–4/0	50–95
150	1–4/0	50–95
Non-Standard Terminals (Steel)		
50	14–2 ②	2.5–35
100	—	—
150	—	—

Notes
 ① Terminal wire connectors are UL listed for standard stranded wire sizes as defined in UL 486A or UL 486B.
 ② Optional on special order for copper cable only.
 All HMCP 800 A and 1200 A come without terminals. For terminals, see Page V4-T2-321.

Current Limiting Circuit Breaker Module

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Current Limiting Circuit Breaker Module

Product Overview

Power demand continues to grow in new and existing facilities. To meet increased demand, larger utility supplies, spot networks and large facility transformers are installed. The increased capacity of the electrical source results in increased fault currents in excess of 100 kA short-circuit protection. Eaton manufactures non-fused current limiting modules with interrupting capacities up to 200 kA at 600 Vac. Unlike fused current limiters with a one-time use, a current limiter module provides an automatic reset of the module after a short-circuit event. Resetting the molded-case circuit breaker is the only action required to restore critical power to the system; there is no time wasted with sourcing the correct replacement fuses or module to bring the system back online.

Product Description

The current limiting breaker modules use a unique contact design to enhance the system protection similar to that of the circuit breaker. When high short-circuit current is flowing through the contacts of these modules, the design results in very high interrupting capacities and improved current limiting characteristics.

Application Description

High-performance breakers are most commonly applied when very high fault levels are available and with applications where the current limiting capability is used upstream of the final load to limit current. Typical loads include lighting, power distribution, and motor control applications.

Features and Benefits

Superior system protection:

- Auto reset improves system uptime and eliminates the need for finding replacement parts
- No fuses to replace, reducing the overall cost of ownership and the waste created by fuses
- Overloads, by using inverse time current tripping characteristics of the molded-case circuit breaker
- Low-level short circuits, by using instantaneous and/or short-time delay tripping characteristics of the molded-case circuit breaker
- High-level short circuits, by using ultra-high-speed, blow-apart contacts of the current limiting module in series with the circuit breaker contacts
- Let-through currents, by improved opening speed of the contacts, the resultant rapid rise of arc voltage introduces impedance into the system

Standards and Certifications

- UL 489
- CSA C22.2



Product Selection

Series C High Performance Ratings

Type	Product	Amperes	480 Vac (UL)	600 Vac (UL)
FDC 3P thermal-magnetic	Breaker only	15–225	100	35
	With limiter	40–200	200	200

FD Frame

FD IC Rating—200 kAIC at 600 Vac ^①

Ampere Rating	Breaker with Line Side Mounted Current Limiter ^②	Breaker with Load Side Mounted Current Limiter ^③
Thermal-Magnetic		
40	FDC3040Q01	FDC3040YQ02
45	FDC3045Q01	FDC3045YQ02
50	FDC3050Q01	FDC3050YQ02
60	FDC3060Q01	FDC3060YQ02
70	FDC3070Q01	FDC3070YQ02
80	FDC3080Q01	FDC3080YQ02
90	FDC3090Q01	FDC3090YQ02
100	FDC3100Q01	FDC3100YQ02
110	FDC3110Q01	FDC3110YQ02
125	FDC3125Q01	FDC3125YQ02
150	FDC3150Q01	FDC3150YQ02
175	FDC3175Q01	FDC3175YQ02
200	FDC3200Q01	FDC3200YQ02

Limiter Terminals

Maximum Breaker Amperes	Terminal Body Material	Wire Type	Metric Wire Range mm ²	AWG Wire Range/ Number of Conductors	Catalog Number
Standard Pressure Type Terminals					
250	Aluminum	Cu/Al	10–185	#8–350 (1)	TA250FJ ^④

Breaker Load Terminals (For Line Mounted Limiters Only)

Maximum Breaker Amperes	Terminal Body Material	Wire Type	AWG Wire Range	Metric Wire Range mm ²	Package of Three Terminals Catalog Number
Standard Pressure Type Terminals					
100	Steel	Cu/Al	14–1/0	2.5–50	3T100FB
225	Aluminum	Cu/Al	4–4/0	25–95	3TA225FD

Notes

- ^① Line and load terminal included.
^② Two interphase barriers provided, mounted on line end of limiter, catalog number **FJ1PBK**.
^③ Four interphase barriers provided, (2) line end of breaker, (2) load end of limiter.
^④ Load side breaker terminations included for units configured with line mounted limiters.

Technical Data and Specifications

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UL 489 Current Limiting Data

Frame	Circuit	I _p (kA)	I ² T (10 ⁶ A ² S)
LDC	240 V/200 kA	64.80	6.80
LDC	480 V/100 kA	66.90	9.33
LDC	600 V/50 kA	54.30	8.92

Dimensions and Weights

Approximate Dimensions in Inches (mm)

Assembled Breaker and Current Limiting Module

Frame	Height	Width	Depth	Weight in lbs (kg)
FD + limiter	12.06 (306.3)	4.13 (104.9)	3.39 (86.1)	8.50 (3.86)

FD-Frame With Current Limiter Module

