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# AB Circuit Breakers for Mining Service

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### Rating Plugs for SELTRONIC Mining Circuit Breakers® (For Standard, MARK 75® and 1000 Volt Frames)

Ampere Rating		Style Number
<b>Type LCM-150, LCMH-150, HLCM-150 Breakers</b>		
75	Thermal Magnetic	2608D90G01
90	Thermal Magnetic	2608D90G02
100	Thermal Magnetic	2608D90G03
125	Thermal Magnetic	2608D90G04
150	Thermal Magnetic	2608D90G05
150	Magnetic Only	2608D90G06
<b>Type LCM-300, LCMH-300, HLCM-300 Breakers</b>		
150	Thermal Magnetic	2608D90G07
175	Thermal Magnetic	2608D90G08
200	Thermal Magnetic	2608D90G09
225	Thermal Magnetic	2608D90G10
250	Thermal Magnetic	2608D90G11
275	Thermal Magnetic	2608D90G12
300	Thermal Magnetic	2608D90G13
300	Magnetic Only	2608D90G14
<b>Type LCM-600, LCMH-600, HLCM-600 Breakers</b>		
300	Thermal Magnetic	2608D90G15
350	Thermal Magnetic	2608D90G16
400	Thermal Magnetic	2608D90G17
450	Thermal Magnetic	2608D90G18
500	Thermal Magnetic	2608D90G19
600	Thermal Magnetic	2608D90G20
600	Magnetic Only	2608D90G21
<b>Type MCM, MCMH, HMCN Breakers</b>		
400	Thermal Magnetic	2606D86G01
500	Thermal Magnetic	2606D86G02
600	Thermal Magnetic	2606D86G03
700	Thermal Magnetic	2606D86G04
800	Thermal Magnetic	2606D86G05
800	Magnetic Only	2606D86G06
<b>Type NCM, NCMH, HNCN Breakers</b>		
900	Thermal Magnetic	2606D86G07
1000	Thermal Magnetic	2606D86G08
1200	Thermal Magnetic	2606D86G09
1200	Magnetic Only	2606D86G10

### Seltronic Mining Circuit Breakers (3 Poles Only)

The Seltronic mining breaker has been developed specifically for mining applications and features a solid state trip with a small, easily changed rating plug to establish continuous rating or to convert to magnetic only operation. The instantaneous trip is independently adjustable to meet federal requirements for trailing cable protection. Breakers are suitable for 50/60Hz Ac applications only, 600 volts max. Terminals not included in styles listed.

Breaker Type	Frame Style Number®	Accessories (Included in Frame)	Mag. Trip® Range, Amps.®
<b>Standard SELTRONIC Mining Frames</b>			
LCM-150	1284C67G01	None	150-1000
LCM-150	1284C67G02	120V Shunt Trip	150-1000
LCM-150	1284C67G03	120V Undervoltage Release	150-1000
LCM-150	1284C67G04	120V UVR with Remote Tripping Leads®	150-1000
LCM-300	1284C67G05	None	300-1500
LCM-300	1284C67G06	120V Shunt Trip	300-1500
LCM-300	1284C67G07	120V Undervoltage Release	300-1500
LCM-300	1284C67G08	120V UVR with Remote Tripping Leads®	300-1500
LCM-600	1284C67G09	None	600-2500
LCM-600	1284C67G10	120V Shunt Trip	600-2500
LCM-600	1284C67G11	120V Undervoltage Release	600-2500
LCM-600	1284C67G12	120V UVR with Remote Tripping Leads®	600-2500
MCM-800	1284C81G01	None	800-2500
MCM-800	1284C81G02	120V Shunt Trip	800-2500
MCM-800	1284C81G03	120V Undervoltage Release	800-2500
MCM-800	1284C81G04	120V UVR with Remote Tripping Leads®	800-2500
NCM-1200	1373D88G17	None	1600-5000
NCM-1200	1373D88G18	120V Shunt Trip	1600-5000
NCM-1200	1373D88G19	120V Undervoltage Release	1600-5000
NCM-1200	1373D88G20	120V UVR with Remote Tripping Leads®	1600-5000
<b>MARK 75 SELTRONIC Mining Frames (High Interrupting Capacity)</b>			
LCMH-150	1284C80G01	None	150-1000
LCMH-150	1284C80G02	120V Shunt Trip	150-1000
LCMH-150	1284C80G03	120V Undervoltage Release	150-1000
LCMH-150	1284C80G04	120V UVR with Remote Tripping Leads®	150-1000
LCMH-300	1284C80G05	None	300-1500
LCMH-300	1284C80G06	120V Shunt Trip	300-1500
LCMH-300	1284C80G07	120V Undervoltage Release	300-1500
LCMH-300	1284C80G08	120V UVR with Remote Tripping Leads®	300-1500
LCMH-600	1284C80G09	None	600-2500
LCMH-600	1284C80G10	120V Shunt Trip	600-2500
LCMH-600	1284C80G11	120V Undervoltage Release	600-2500
LCMH-600	1284C80G12	120V UVR with Remote Tripping Leads®	600-2500
MCMH-800	1284C82G01	None	800-2500
MCMH-800	1284C82G02	120V Shunt Trip	800-2500
MCMH-800	1284C82G03	120V Undervoltage Release	800-2500
MCMH-800	1284C82G04	120V UVR with Remote Tripping Leads®	800-2500
NCMH-1200	1373D88G13	None	1600-5000
NCMH-1200	1373D88G14	120V Shunt Trip	1600-5000
NCMH-1200	1373D88G15	120V Undervoltage Release	1600-5000
NCMH-1200	1373D88G16	120V UVR with Remote Tripping Leads®	1600-5000

® Changed since previous issue.  
 ① Remote tripping requires a normally open contact not supplied with the breaker.  
 ② The magnetic trip range does not change when rating plug is changed.  
 ③ Rating plugs are not interchangeable with standard Seltronic breakers.

### Ordering Information

Order frame and rating plug by style number from table.

Order terminals from page 4.

List Prices: Refer to Price List 29-020



## AB Circuit Breakers for Mining Service

### Standard Mining Service Circuit Breakers

Specially developed mining service circuit breakers to meet trailing cable protection requirements of the Federal Mine Safety Law. The FBM through NBM and HFBM through NBMH MARK® 75 breakers are rated at 600 volts Ac maximum. All breakers listed are complete with accessories indicated; terminals are not included. Trip elements are as indicated: M (magnetic only)ⓐ TM (thermal magnetic).

List Prices: Refer to Price List 29-020

Type Breaker	Style Number	Poles	Amps	Type Trip	Accessories (Included in Frame)	Mag. Trip Range, Amps	Type Breaker	Style Number	Poles	Amps	Type Trip	Accessories (Included in Frame)	Mag. Trip Range, Amps
FBM	1366D21G01	2	30	M	None	50-150	KAM	1291C26G04	3	225	TM	UVRⓐ	500-1000
FBM	1366D21G02	2	50	M	None	66-190	KAM	2609D60G01	3	225	TM	Standard Shunt Tripⓑ	300-700
FBM	1366D21G03	2	50	M	Terminal Shield	66-190	KAM	2609D60G02	3	225	TM	Standard Shunt Tripⓑ	500-1000
FBM	1366D21G04	2	100	M	None	150-480	KAM	2609D60G40	3	225	M	None	300-700
FBM	1366D21G05	2	100	M	UVRⓐ, Terminal Shield	150-480	KAM	2609D60G41	3	225	M	None	500-700
							KAM	1291C26G05	3	225	M	UVRⓐ	300-700
							KAM	1291C26G06	3	225	M	UVRⓐ	500-1000
FBM	1366D21G08	3	30	M	None	50-150							
FBM	1366D21G14	3	30	TM	None	50-150	LAM	1291C32G01	2	400	TM	UVRⓐ	500-1000
FBM	1366D21G09	3	30	M	Terminal Shield	50-150	LAM	2609D60G61	2	400	M	Shunt Trip (48 volts Dc)ⓐ	750-1500
FBM	1366D21G12	3	30	M	UVRⓐ	50-150	LAM	1291C32G03	3	400	TM	UVRⓐ	500-1000
FBM	1366D21G10	3	30	M	UVRⓐ, Terminal Shield	50-150	LAM	5685D48G73	3	400	TM	None	800-1600
FBM	1366D21G15	3	30	TM	UVRⓐ	50-150	LAM	1291C32G02	3	400	TM	UVRⓐ	800-1600
FBM	1366D21G13	3	30	M	Standard Shunt Tripⓑ	50-150	LAM	2609D60G03	3	400	TM	Standard Shunt Tripⓑ	800-1600
FBM	1366D21G16	3	30	TM	Standard Shunt Tripⓑ	50-150	LAM	2609D60G44	3	400	M	None	800-1600
FBM	1366D21G17	3	50	M	None	66-190	LAM	1291C32G04	3	400	M	UVRⓐ	800-1600
FBM	1366D21G34	3	50	M	UVRⓐ	66-190							
FBM	1366D21G35	3	50	M	Terminal Shield	66-190	MAM	2609D60G17	2	600	TM	UVRⓐ	750-1500
FBM	1366D21G36	3	50	M	UVRⓐ, Terminal Shield	66-190	MAM	2609D60G18	2	800	TM	UVRⓐ	1000-2000
FBM	1366D21G37	3	50	M	Standard Shunt Tripⓑ	66-190	MAM	2609D60G63	3	400	TM	UVRⓐ	2000-4000
FBM	1366D21G18	3	100	M	None	150-480	MAM	5685D48G72	3	600	TM	None	1500-3000
FBM	1366D21G28	3	100	TM	None	150-480	MAM	2609D60G19	3	600	TM	UVRⓐ	1500-3000
FBM	1366D21G19	3	100	M	Terminal Shield	150-480	MAM	2609D60G04	3	600	TM	Standard Shunt Tripⓑ	1500-3000
FBM	1366D21G27	3	100	M	UVRⓐ	150-480	MAM	2609D60G05	3	800	TM	Standard Shunt Tripⓑ	2000-4000
FBM	1366D21G20	3	100	M	UVRⓐ, Terminal Shield	150-480	MAM	5685D48G71	3	800	TM	None	2000-4000
FBM	1366D21G29	3	100	TM	UVRⓐ	150-480	MAM	2609D60G20	3	800	TM	UVRⓐ	2000-4000
FBM	1366D21G22	3	100	M	Shunt Tripⓐ, Term. Shield	150-480	MAM	2609D60G46	3	800	M	None	1500-3000
FBM	1366D21G33	3	100	TM	Standard Shunt Tripⓑ	150-480	MAM	2609D60G47	3	800	M	UVRⓐ	1500-3000
FBM	1366D21G43	3	100	M	Shunt Tripⓐ, Term. Shield	150-480	MAM	2609D60G48	3	800	M	None	2000-4000
FBM	1366D21G45	3	100	M	Shunt Tripⓐ	450-1550	MAM	2609D60G49	3	800	M	UVRⓐ	2000-4000
FBM	1366D21G46	3	15	TM	UVRⓐ	.....							
KAM	2609D60G64	2	180	M	None	200-400	NBM	1229C37G13	2	1000	TM	UVRⓐ	1500-3000
KAM	1291C26G07	2	180	M	UVRⓐ	200-400	NBM	1229C37G14	2	1200	TM	UVRⓐ	2000-4000
KAM	2609D60G66	2	180	M	Standard Shunt Tripⓑ	200-400	NBM	1227C36G10	3	1000	TM	None	2500-5000
KAM	1291C26G01	2	225	TM	UVRⓐ	300-700	NBM	1229C37G15	3	1000	TM	UVRⓐ	2500-5000
KAM	1291C26G02	2	225	TM	UVRⓐ	500-1000	NBM	1227C36G13	3	1000	TM	Standard Shunt Tripⓑ	2500-5000
KAM	2609D60G67	3	180	M	None	200-400	NBM	1227C36G14	3	1200	TM	Standard Shunt Tripⓑ	2500-5000
KAM	1291C26G08	3	180	M	UVRⓐ	200-400	NBM	1227C36G09	3	1200	TM	None	2500-5000
KAM	2609D60G69	3	180	M	Standard Shunt Tripⓑ	200-400	NBM	1229C37G16	3	1200	TM	UVRⓐ	2500-5000
KAM	5685D48G75	3	225	TM	None	300-700	NBM	1227C36G19	3	1200	M	None	2500-5000
KAM	5685D48G74	3	225	TM	None	500-1000	NBM	1229C37G17	3	1200	M	UVRⓐ	2500-5000
KAM	1291C26G03	3	225	TM	UVRⓐ	300-700							

### Ordering Information

Order complete breakers, with or without accessories, by Style Number, from Table above.

### Trip Units for Standard and MARK 75® Mining Service Circuit Breakers

(See MARK 75 Frames Page 3.)

Order Terminals from page 4.

Conductor Size	Mag. Trip Range, Amps	Max Cont. Amps	Breaker Type	Style Numbers		
				Thermal	Magnetic	Mag. Only
				2 Poles	3 Polesⓐ	3 Poles
#6	200-400	180	KAM	2609D99G06ⓐ	.....	2609D99G07
#4, #3	300-700	225	KAM	5685D48G42	5685D48G40	2611D75G01
#4 - #1	500-1000	225	KAM	5685D48G36	5685D48G34	2611D75G02
#4 - #1	500-1000	400	LAM	5685D48G30	5685D48G97	.....
#2 - #2/0	800-1600	400	LAM	.....	5685D48G28	2611D75G03
#2 - #2/0	750-1500	600	MAM	5685D48G24	.....	.....
2/0 - 500MCM	1500-3000	600	MAM	.....	5685D48G22	2611D75G04ⓐ
#1 - 3/0	1000-2000	800	MAM	5685D48G18	.....	.....
3/0 - 500MCM	2000-4000	800	MAM	.....	5685D48G16	2611D75G05
2/0 - 500MCM	1500-3000	1000	NBM	5685D48G12	.....	.....
4/0 - 500MCM	2500-5000	1000	NBM	.....	5685D48G10	.....
3/0 - 500MCM	2000-4000	1200	NBM	5685D48G06	.....	.....
4/0 - 500MCM	2500-5000	1200	NBM	.....	5685D48G04	2611D75G07
ⓐ	1500-5000	600	HPBM	.....	1290C94G09	.....
ⓑ	1500-5000	800	HPBM	.....	1290C94G10	.....
ⓒ	1500-5000	1000	HPBM	.....	1290C94G11	.....
ⓓ	2000-6000	1200	HPBM	.....	1290C94G12	.....

- ⓐ Changed since previous issue.
- ⓑ Shunt trip does not contain cut-off switch; rated 480 volts/60 Hz. Where these shunt trips are used, auxiliary protection is required to prevent burnout of shunt trip coil.
- ⓒ Rated 120 volts, 60 Hz.; undervoltage release is handle reset type.
- ⓓ Types FBM and HFBM Magnetic only breakers for Dc applications should be ordered as "similar to listed style number" and calibration for Dc specified.
- ⓔ Three pole trip units are also suitable for replacement in standard 1000 volt breakers.
- ⓕ Except KAM, 180 amp, is magnetic only.
- ⓖ 120 volts 60 Hz. electrical reset type.
- ⓗ Bus connected.
- ⓘ 800 amps.
- ⓙ Includes terminals.



### AB Circuit Breakers for Mining Service

#### MARK 75® Mining Breakers

(High I.C. Thermal Magnetic and Magnetic Only Types)

Type Breaker	Style Number	Poles	Amps	Type Trip	Accessories (Included in Frame)	Mag. Trip Range, Amps.
HFBM	1366D21G06	2	50	M	Terminal Shield	66-190
HFBM	1366D21G07	2	100	M	UVR <sup>②</sup> , Terminal Shield	150-480
HFBM	1366D21G42	3	30	M	UVR <sup>②</sup> , Terminal Shield	50-150
HFBM	1366D21G38	3	50	M	UVR <sup>②</sup>	66-190
HFBM	1366D21G39	3	50	M	Terminal Shield	66-190
HFBM	1366D21G40	3	50	M	UVR <sup>②</sup> , Terminal Shield	66-190
HFBM	1366D21G41	3	50	M	Standard Shunt Trip <sup>②</sup>	66-190
HFBM	1366D21G30	3	100	M	None	150-480
HFBM	1366D21G23	3	100	M	Terminal Shield	150-480
HFBM	1366D21G31	3	100	M	UVR <sup>②</sup>	150-480
HFBM	1366D21G24	3	100	M	UVR <sup>②</sup> , Terminal Shield	150-480
HFBM	1366D21G32	3	100	M	Standard Shunt Trip <sup>②</sup>	150-480
HFBM	1366D21G44	3	100	M	Shunt Trip <sup>②</sup> Term. Shield	150-480
KAMH	1291C26G17	2	225	TM	UVR <sup>⑤</sup>	300-700
KAMH	1291C26G18	2	225	TM	UVR <sup>⑤</sup>	500-1000
KAMH	1278C71G03	3	225	TM	None	300-700
KAMH	1278C71G04	3	225	TM	None	500-1000
KAMH	1291C26G19	3	225	TM	UVR <sup>⑤</sup>	300-700
KAMH	1291C26G20	3	225	TM	UVR <sup>⑤</sup>	500-1000
KAMH	1278C71G07	3	225	TM	Standard Shunt Trip <sup>②</sup>	300-700
KAMH	1278C71G08	3	225	TM	Standard Shunt Trip <sup>②</sup>	500-1000
KAMH	1278C71G11	3	225	M	None	300-700
KAMH	1278C71G12	3	225	M	None	500-1000
KAMH	1291C26G21	3	225	M	UVR <sup>⑤</sup>	300-700
KAMH	1291C26G22	3	225	M	UVR <sup>⑤</sup>	500-1000
LAMH	1291C32G05	2	400	TM	UVR <sup>⑤</sup>	500-1000
LAMH	1278C72G02	3	400	TM	None	800-1600
LAMH	1291C32G06	3	400	TM	UVR <sup>⑤</sup>	800-1600
LAMH	1278C72G04	3	400	TM	Standard Shunt Trip <sup>②</sup>	800-1600
LAMH	1278C72G06	3	400	M	None	800-1600
LAMH	1291C32G08	3	400	M	UVR <sup>⑤</sup>	800-1600
MAMH	1278C73G01	2	600	TM	UVR <sup>②</sup>	750-1500
MAMH	1278C73G02	2	800	TM	UVR <sup>②</sup>	1000-2000
MAMH	1278C73G03	3	600	TM	None	1500-3000
MAMH	1278C73G04	3	600	TM	UVR <sup>②</sup>	1500-3000
MAMH	1278C73G05	3	600	TM	Standard Shunt Trip <sup>②</sup>	1500-3000
MAMH	1278C73G07	3	800	TM	Standard Shunt Trip <sup>②</sup>	2000-4000
MAMH	1278C73G08	3	800	TM	None	2000-4000
MAMH	1278C73G09	3	800	TM	UVR <sup>②</sup>	2000-4000
MAMH	1278C73G11	3	800	M	None	1500-3000
MAMH	1278C73G12	3	800	M	UVR <sup>②</sup>	1500-3000
MAMH	1278C73G13	3	800	M	None	2000-4000
MAMH	1278C73G14	3	800	M	UVR <sup>②</sup>	2000-4000
NBMH	1227C37G15	2	1000	TM	UVR <sup>⑤</sup>	1500-3000
NBMH	1227C37G16	2	1200	TM	UVR <sup>⑤</sup>	2000-4000
NBMH	1227C37G17	3	1000	TM	None	2500-5000
NBMH	1227C37G18	3	1000	TM	UVR <sup>⑤</sup>	2500-5000
NBMH	1227C37G19	3	1000	TM	Standard Shunt Trip <sup>②</sup>	2500-5000
NBMH	1227C37G21	3	1200	TM	Standard Shunt Trip <sup>②</sup>	2500-5000
NBMH	1227C37G22	3	1200	TM	None	2500-5000
NBMH	1227C37G23	3	1200	TM	UVR <sup>⑤</sup>	2500-5000
NBMH	1227C37G27	3	1200	M	None	2500-5000
NBMH	1227C37G28	3	1200	M	UVR <sup>⑤</sup>	2500-5000

#### Ordering Information

Order by Style Number from appropriate table. For Seltronic breakers, order rating plugs from page 1.

List Prices: Refer to Price List 29-020.

- ① Changed or added since previous issue.
- ② The magnetic trip range does not change when rating plug is changed.
- ③ Rated 120 volts, 60 Hz.; undervoltage release is handle reset type.
- ④ Remote tripping requires a Normally Open Contact not supplied with the breaker.
- ⑤ Except that HFM is slightly longer than FBM.
- ⑥ 120 volt, 60 Hz electrical reset type.
- ⑦ UVR is auto-reset type, 120 volts Ac.
- ⑧ Breaker includes rear bus connectors.

#### 1000 Volt Standard Mining Service Circuit Breakers

These are specially designed and treated three pole breakers, with accessories indicated, for application on 1000 volts Ac, 60 Hz, and are the same physical size as standard mining service 100 to 1200 amp circuit breaker frames<sup>④</sup>. Terminals are not included, except for Type HFM.

Breaker Type	Style Number	Poles	Amps	Type Trip	Accessories (Included in Frame)	Mag. Trip Range, Amps.
HFM	2609D60G10	3	30	M	None	50-150
HFM	5685D48G89	3	30	M	Terminal Shield	50-150
HFM	5685D48G90	3	30	M	UVR <sup>⑥</sup> , Terminal Shield	50-150
HFM	2609D60G08	3	100	M	None	150-480
HFM	2609D60G09	3	100	M	UVR <sup>⑥</sup>	150-480
HFM	5685D48G88	3	100	M	Terminal Shield	150-480
HFM	5685D48G45	3	100	M	UVR <sup>⑥</sup> , Terminal Shield	150-480
HKAM	2609D60G70	3	180	M	None	200-400
HKAM	1291C26G16	3	180	M	UVR <sup>⑤</sup>	200-400
HKAM	5685D48G87	3	225	TM	None	300-700
HKAM	1291C26G12	3	225	TM	UVR <sup>⑤</sup>	300-700
HKAM	5685D48G86	3	225	TM	None	500-1000
HKAM	1291C26G13	3	225	TM	UVR <sup>⑤</sup>	500-1000
HKAM	1291C26G14	3	225	M	UVR <sup>⑤</sup>	300-700
HKAM	1291C26G15	3	225	M	UVR <sup>⑤</sup>	500-1000
HLAM	5685D48G85	3	400	TM	None	800-1600
HLAM	1291C32G07	3	400	TM	UVR <sup>⑤</sup>	800-1600
HLAM	1291C32G09	3	400	M	UVR <sup>⑤</sup>	800-1600
HMAM	5685D48G84	3	600	TM	None	1500-3000
HMAM	2609D60G28	3	600	TM	UVR <sup>②</sup>	1500-3000
HMAM	5685D48G83	3	800	TM	None	2000-4000
HMAM	2609D60G29	3	800	TM	UVR <sup>②</sup>	2000-4000
HMAM	2609D60G57	3	800	M	UVR <sup>②</sup>	1500-3000
HMAM	2609D60G58	3	800	M	UVR <sup>②</sup>	2000-4000
HNBM	1227C36G12	3	1000	TM	None	2500-5000
HNBM	1229C37G19	3	1000	TM	UVR <sup>⑤</sup>	2500-5000
HNBM	1227C36G11	3	1200	TM	None	2500-5000
HNBM	1229C37G20	3	1200	TM	UVR <sup>⑤</sup>	2500-5000
HNBM	1229C37G18	3	1200	M	UVR <sup>⑤</sup>	2500-5000
HPBM	1229C37G09	3	600	TM	UVR <sup>⑤</sup> ⑦	1500-5000
HPBM	1229C37G10	3	800	TM	UVR <sup>⑤</sup> ⑦	1500-5000
HPBM	1229C37G11	3	1000	TM	UVR <sup>⑤</sup> ⑦	1500-5000
HPBM	1229C37G12	3	1200	TM	UVR <sup>⑤</sup> ⑦	2000-6000
HPBM	1290C94G05	3	600	TM	None ⑦	1500-5000
HPBM	1290C94G06	3	800	TM	None ⑦	1500-5000
HPBM	1290C94G07	3	1000	TM	None ⑦	1500-5000
HPBM	1290C94G08	3	1200	TM	None ⑦	2000-6000

#### 1000 Volt Seltronic Mining Frames

Breaker Type	Frame Style Number	Accessories (Included in Frame)	Mag. Trip Range, Amps. ①
HLCM-150	1284C68G01	None	150-1000
HLCM-150	1284C68G02	120V Shunt Trip	150-1000
HLCM-150	1284C68G03	120V Undervoltage Release	150-1000
HLCM-150	1284C68G04	120V UVR with Remote Tripping Leads <sup>②</sup>	150-1000
HLCM-300	1284C68G05	None	300-1500
HLCM-300	1284C68G06	120V Shunt Trip	300-1500
HLCM-300	1284C68G07	120V Undervoltage Release	300-1500
HLCM-300	1284C68G08	120V UVR with Remote Tripping Leads <sup>②</sup>	300-1500
HLCM-600	1284C68G09	None	600-2500
HLCM-600	1284C68G10	120V Shunt Trip	600-2500
HLCM-600	1284C68G11	120V Undervoltage Release	600-2500
HLCM-600	1284C68G12	120V UVR with Remote Tripping Leads <sup>②</sup>	600-2500
HMCM-800	1284C83G01	None	800-2500
HMCM-800	1284C83G02	120V Shunt Trip	800-2500
HMCM-800	1284C83G03	120V Undervoltage Release	800-2500
HMCM-800	1284C83G04	120V UVR with Remote Tripping Leads <sup>②</sup>	800-2500
HNCM-1200	1373D89G09	None	1600-5000
HNCM-1200	1373D89G10	120V Shunt Trip	1600-5000
HNCM-1200	1373D89G11	120V Undervoltage Release	1600-5000
HNCM-1200	1373D89G12	120V UVR with Remote Tripping Leads <sup>②</sup>	1600-5000



## AB Circuit Breakers for Mining Service

### Current Limit-R Breakers<sup>ⓐ</sup> – Order Rating Plugs Below

Breaker Type	Frame Style Number	Accessories (Included in Frame)	Magnetic Trip Range, Amps. <sup>ⓑ</sup>
HLCLM-250	1228C81G01	None	600-1500
HLCLM-250	1228C81G02	120V Shunt Trip	600-1500
HLCLM-250	1228C81G03	120V Undervoltage Release	600-1500
HLCLM-250	1228C81G04	120V UVR with Remote Tripping Leads <sup>Ⓒ</sup>	600-1500
HLCLM-400	1228C82G01	None	800-2500
HLCLM-400	1228C82G02	120V Shunt Trip	800-2500
HLCLM-400	1228C82G03	120V Undervoltage Release	800-2500
HLCLM-400	1228C82G04	120V UVR with Remote Tripping Leads <sup>Ⓒ</sup>	800-2500

### Special Mining Service Breaker Frames Only

These frames are modified to accept handle reset undervoltage releases or standard shunt trips listed on page 6. Frames are identified as special mining service breaker frames by the orange nameplates. The only modification necessary by the user is to file exit holes for attachment leads. Use trip units listed on page 2 and terminals on this page.

### Rating Plugs for HLCLM Current Limiting Mining Breakers

#### Type HLCLM 250

Ampere Rating	Type	Style Number
125	Thermal Magnetic	1228C78G01
150	Thermal Magnetic	1228C78G02
175	Thermal Magnetic	1228C78G03
200	Thermal Magnetic	1228C78G04
225	Thermal Magnetic	1228C78G05
250	Thermal Magnetic	1228C78G06
250	Magnetic Only	1228C78G07

#### Type HLCLM 400

Ampere Rating	Type	Style Number
200	Thermal Magnetic	1228C79G01
225	Thermal Magnetic	1228C79G02
250	Thermal Magnetic	1228C79G03
300	Thermal Magnetic	1228C79G04
350	Thermal Magnetic	1228C79G05
400	Thermal Magnetic	1228C79G06
400	Magnetic Only	1228C79G07

Type Breaker	Poles	Style Number
KAM <sup>ⓐ</sup>	2	2602D86G11 <sup>ⓑ</sup>
KAM <sup>ⓐ</sup>	3	2602D86G12 <sup>ⓑ</sup>
KAMH <sup>ⓐ</sup>	2	2602D86G13 <sup>ⓑ</sup>
KAMH <sup>ⓐ</sup>	3	2602D86G14 <sup>ⓑ</sup>
HKAM <sup>ⓐ</sup>	3	1264C99G05 <sup>ⓑ</sup>
LAM <sup>ⓐ</sup>	2	2602D99G05
LAM <sup>ⓐ</sup>	3	2602D99G06
LAMH <sup>ⓐ</sup>	2	2602D99G07
LAMH <sup>ⓐ</sup>	3	2602D99G08
HLAM <sup>ⓐ</sup>	3	1264C99G02
MAM <sup>ⓐ</sup>	2	2600D43G11
MAM <sup>ⓐ</sup>	3	2600D43G12
MAMH <sup>ⓐ</sup>	2	2600D43G13
MAMH <sup>ⓐ</sup>	3	2600D43G14
HMAM <sup>ⓐ</sup>	3	1264C99G03
NBM <sup>ⓐ</sup>	2	2610D64G07 <sup>ⓑ</sup>
NBM <sup>ⓐ</sup>	3	2610D64G08 <sup>ⓑ</sup>
NBMH <sup>ⓐ</sup>	2	2610D64G09 <sup>ⓑ</sup>
NBMH <sup>ⓐ</sup>	3	2610D64G10 <sup>ⓑ</sup>
HNBM <sup>ⓐ</sup>	3	2610D64G13 <sup>ⓑ</sup>

### Terminals for Mining Service Circuit Breakers

Terminals are Underwriters' Laboratories, Inc., listed for wire type and range listed below. When used with aluminum conductors, use joint compound. FBM and HFBM terminals are included at no charge when ordered with the breaker. Price terminals from 29-120 section of Price List 29-020.

#### FBM, HFBM

Max Amps	Package of 3 Line Terminals Style Number	Wire Range, Type
<b>Standard Pressure Type Terminals</b>		
100	624B100G02	# 14-1/0 Al/Cu
<b>Optional Al/Cu Pressure Terminals</b>		
50	624B100G10	# 14-#4 Al/Cu
100	624B100G17	# 4-4/0 Al/Cu

#### LCM-600, LCMH-600, HLCM-600

Max Amps	Terminal Cat. No.	Wire Range, Type No. of Cables
<b>Standard Copper Pressure Terminals</b>		
600	T600LA	2 250-500 MCM Cu
<b>Optional Al/Cu Pressure Terminals</b>		
600	TA600LA	2 250-500 MCM Al/Cu

#### KAM, HKAM, KAMH

Max Amps	Terminal Cat. No.	Wire Range, Type No. of Cables
<b>Standard Pressure Terminals (Copper Only)</b>		
225	T225LA	1 #6-350 MCM
225	T225LBF	1 #6-250 MCM
<b>Optional Al/Cu Pressure Terminals</b>		
225	TA225LA1	1 #6-350 MCM Cu, or 1 #4-350 MCM Al

#### MAM, MCM, HMAM, MAMH, MCMH, HMCM

Max Amps	Terminal Cat. No.	Wire Range, Type No. of Cables
<b>Standard Copper Pressure Terminals</b>		
350	T350MA	1 #1-600 MCM Cu
600	T600MA1	2 2/0-500 MCM Cu
800	T800MA1	3 3/0-300 MCM Cu
<b>Optional Al/Cu Pressure Terminals</b>		
600	TA700MA1	2 #1-500 MCM Al/Cu
800	TA800MA2	3 3/0-400 MCM Al/Cu
800	TA801MA	2 500-750 MCM Al/Cu

#### LAM, LCM-150, LCM-300, HLAM, LAMH, LCMH-150, LCMH-300, HLCM-150, HLCM-300, HLCLM-250, HLCLM-400

Max Amps	Terminal Cat. No.	Wire Range, Type No. of Cables
<b>Standard Copper Pressure Terminals</b>		
225	T225LA	1 #6-350 MCM Cu
225	T225LBF	1 #6-250 MCM Cu
400	T401LA	1 #4-250 MCM Cu, plus 1 3/0-600 MCM Cu
<b>Optional Al/Cu Pressure Terminals</b>		
225	TA225LA1	1 #6-350 MCM Cu, or 1 #4-350 MCM Al
400	TA400LA1	1 #4-250 MCM Al/Cu, plus 1 3/0-600 MCM Al/Cu
400	TA401LA	1 600-750 MCM Al

#### NBM, NCM, HNBM, NBMH, NCMH, HNCM

Max Amps	Terminal Cat. No.	Wire Range, Type No. of Cables
<b>Standard Copper Pressure Terminals</b>		
1000	T1000NB1	3 3/0-500 MCM Cu
1200	T1200NB1	4 3/0-400 MCM Cu
<b>Optional Al/Cu Pressure Terminals</b>		
1000	TA1000NB1	3 3/0-400 MCM Al/Cu
1200	TA1200NB1	4 4/0-500 MCM Al/Cu
1200	TA1201NB1	3 500-750 MCM Al/Cu

- ⓐ Changed or added since previous issue.
- ⓑ Frame modified for left hand mounting of UVR attachment.
- Ⓒ Frame modified for right hand mounting of UVR attachment.

- ⓑ The magnetic trip range does not change when rating plug is changed.
- Ⓒ Remote tripping requires a normally open contact not supplied with breaker.



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 pages 5-6, dated March, 1978  
 Mailed to: E, D, C/29-100B

# AB Circuit Breakers for Mining Service

## Application Data

### Undervoltage Release Data

Undervoltage releases are calibrated to pick-up at 72-85% of rated voltage and dropout between 35-70% of rated voltage.

Voltage	Breaker Type														
	FBM, HF <sup>④</sup>			KAM, HKAM <sup>③</sup> KAMH			LAM, HLAM, MAM, HMAM, NBM, HNBM <sup>③</sup> LAMH, MAMH, NBMH			HFM <sup>⑤</sup>			LCM, MCM, NCM HLCM, HMCM, HNCM, LCMH, MCMH, NCMH <sup>③</sup>		
	Line Amps	Series Resistors <sup>●</sup>	Total Va	Line Amps	Series Resistors <sup>②</sup>	Total Va	Line Amps	Series Resistors <sup>②</sup>	Total Va	Line Amps	Series Resistors <sup>②</sup>	Total Va	Line Amps	Total Va	
600/60	.02	25,000	12.0	.02	17,500	12.0	.032	12,000 <sup>①</sup>	19.2	.01	60,000	6.	..	..	
480/60	.016	25,000	7.7	.021	10,000	10.1	.033	12,000	15.9	.013	30,000	6.3	..	..	
240/60	.021	6,000	5.1	.019	.....	4.6	.028	6,000	6.7	.013	.....	3.2	..	..	
208/60	.019	6,000	4.0	.020	.....	4.2	.031	4,000	6.5	.018	.....	3.8	..	..	
120/60	.023	.....	2.8	.021	.....	2.5	.029	.....	3.5	.023	.....	2.8	.05	6	
120/60 <sup>③</sup>	.....	.....	.....	.13	.....	15.6	.13	.....	15.6	.....	.....	.....	.....	.....	
24/60	.25	50	6.0	.095	.....	2.3	.207	.....	5.0	.....	.....	.....	.....	.....	
250/DC	.026	5,000	6.5	.024	.....	6.0	.03	6,000	7.5	.013	16,500	3.3	..	..	
125/DC	.026	.....	3.3	.023	.....	2.9	.032	.....	4.0	.013	6,500	1.7	..	..	
60/DC	.248	200	14.9	.025	.....	1.5	.069	.....	4.2	.....	.....	.....	..	..	
48/DC	.260	150	12.5	.020	.....	1.0	.066	.....	3.2	.012	600	.6	..	..	
24/DC	.141	.....	3.4	.042	.....	1.0	.126	.....	3.0	.023	.....	.6	..	..	
12/DC	.286	.....	3.5	.086	.....	1.0	.20	.....	2.4	.048	.....	.6	..	..	

## Shunt Trip Coil Data

Volts	Breaker Type					
	All Except Those Listed at Right		HFM		SELTRONIC™ Breakers Standard, MARK 75 and 1000 Volt	
	Amps	Va	Amps	Va	Amps	Va
600/60	.105	63	.....	.....	.....	.....
480/60	.085	40.8	.35	168	.....	.....
240/60	1.7	408	1.3	312	.....	.....
208/60	1.4	291.2	.....	.....	.....	.....
120/60	.88	105.6	4.5	540	.15	18
60/60	9.10	546	.....	.....	.....	.....
48/60	7.5	360	.....	.....	.....	.....
24/60	3.95	94.8	.....	.....	.....	.....
250 Dc	.10	25	.24	60	.....	.....
125 Dc	.975	121.9	.91	113.8	.....	.....
60 Dc	.525	31.5	.....	.....	.....	.....
48 Dc	8.0	384	2.2	105.6	.....	.....
24 Dc	8.0	192	4.45	106.8	.....	.....
12 Dc	6.0	72	8.9	106.8	.....	.....

## Ac Interrupting Capacity, Symmetrical Amps

60 Hz AC Volts	Breaker Type										
	FBM <sup>④</sup>	HF <sup>④</sup>	KAM	KAMH, LAMH, MAMH, MAM, NBMH, LCMH	LAM, LCM, MAM, MCM, NBM, NCM	MCMH, NCMH	HFM, HKAM	HLAM ⑤	HPBM	HLCLM	All Other 1000 Volt Breakers ⑥
240	18,000	65,000	25,000	65,000	42,000	65,000	.....	.....	.....	.....	.....
480	14,000	25,000	22,000	35,000	30,000	50,000	.....	.....	.....	.....	.....
600	14,000	18,000	22,000	25,000	22,000	25,000	.....	.....	.....	.....	.....
1000 <sup>⑦</sup>	.....	.....	.....	.....	.....	.....	10,000	12,000	24,000	25,000 <sup>⑧</sup>	14,000

## Special Dc Interrupting Capacity

Type	Breaker Interrupting Capacity (Amps) at 300-330 Volts Dc			
	Single Pole		Two Poles in Series <sup>⑥</sup>	
	.0-.15mH Inductance	.15-.5mH Inductance	.5-.9mH Inductance	2.4mH Inductance
	⑤			
FBM <sup>②</sup>	10,000	7,500	10,000	5,000
KAM	15,000	10,000	15,000	5,000
LAM	15,000	10,000	15,000	5,000
MAM	15,000	10,000	15,000	5,000
NBM	15,000	10,000	15,000	5,000

① 16,000 for Type MAM, MAMH and HMAM.

② Supplied for external customer mounting.

③ These attachments field mountable except on FBM, HF<sup>④</sup>, HFM, and all SELTRONIC breakers.

④ Thermal magnetic or magnetic only.

⑤ Resistive circuit.

⑥ Two poles in electrical series in ungrounded leg of circuit.

● FBM or HF<sup>④</sup> magnetic only breakers require special calibration for Dc application.

⑧ HLAM and HLCLM must be rear stud connected. If front connected, I.C. rating is 10,000 amperes.

● New design electrical reset U.V.R.

● Based on circuit power factor of 50% or greater.

① Series rated for application with Westinghouse 1000 volt breakers.



## AB Circuit Breakers for Mining Service

### Accessories

#### Rear Connected Studs<sup>Ⓔ</sup>

For complete stud assembly, order a stud and tube based on thickness of customer's mounting panel. A short stud must be assembled adjacent to a long stud to maintain clearances required by Underwriters' Laboratories, Inc.<sup>®</sup> Two studs required per pole. For List Prices, see 29-120 Section of Price List 29-020.

Mounting Panel Thickness, Inches	Stud		Tube <sup>Ⓓ</sup>		
	Length	Style Number	Length	Style Number	
<b>FBM, HFBM Breakers</b>	Short	451D874G01	1 1/16	32B9446H20	
	Long	451D874G02	3 7/16	32B9446H24	
	1 1/16-1 5/16	Short	451D874G01	1 3/8	32B9446H21
		Long	451D874G02	3 3/4	32B9446H25
	3/8-5/8	Short	451D874G01	1 11/16	32B9446H22
		Long	451D874G02	4 1/16	32B9446H26
1/4-5/16	Short	451D874G01	2	32B9446H23	
	Long	451D874G02	4 3/8	32B9446H27	
<b>KAM, HKAM, KAMH Breakers</b>	3/4-1	Short	656D565G01	2 7/32	456D983H05
		Long	656D565G02	3 25/32	456D983H08
	1/2-3/4	Short	656D565G01	1 3/32	456D983H06
		Long	656D565G02	4 1/32	456D983H09
	1/4-1/2	Short	656D565G01	1 11/32	456D983H07
		Long	656D565G02	4 9/32	456D983H10

For insulated panels only: 2 per pole.

Stud Ampere Rating	Diameter, Inches and Thread	Extension Back of Breaker, Inches	Stud Style Number
<b>LAM, LCM, HLAM, LAMH, LCMH, HLCM Breakers</b>			
225 <sup>Ⓔ</sup>	1/2-13	3 7/32	1241 345
225 <sup>Ⓔ</sup>	1/2-13	6 9/32	1241 346
225 <sup>Ⓔ</sup>	1/2-13	4 31/32	1241 392
400 <sup>Ⓔ</sup>	3/4-16	5 15/32	05B7383G22
400 <sup>Ⓔ</sup>	3/4-16	7 31/32	05B7383G23
400 <sup>Ⓔ</sup>	3/4-16	10 15/32	05B7383G24
600	1 -12	5 29/32	314C960G16
600	1 -12	8 13/32	314C960G17
600	1 -12	10 29/32	314C960G18
<b>MAM, MCM, HMAM, MAMH, MCMH, HMCM Breakers</b>			
225	1/2-13	3 31/32	314C960G01
400	3/4-16	5 29/32	314C960G04
400	3/4-16	8 13/32	314C960G05
400	3/4-16	10 29/32	314C960G06
600	1 -12	5 29/32	314C960G07
600	1 -12	8 13/32	314C960G08
600	1 -12	10 29/32	314C960G09
800	1 1/8-12	4 29/32	314C960G10
800	1 1/8-12	8 13/32	314C960G11
800	1 1/8-12	10 29/32	314C960G12
<b>NBM, NCM, HNB, NBMH, NCMH, HNCM Breakers</b>			
800	1 1/8-12	5 1/2	623B222G01
800	1 1/8-12	8	623B222G02
800	1 1/8-12	10 1/2	623B222G03
1200	1 1/4-12	5 1/2	373B375G04
1200	1 1/4-12	10 1/2	373B375G03

### Line and Load Terminal Shields<sup>Ⓔ</sup>

Type Breaker	Style No.	Description
KAM	1261C93G01	Line Terminals
KAM	1262C46G01	Load Terminals
LAM-400	1261C95G01	Line Terminals
LAM-400	1262C48G01	Load Terminals
MAM	1261C97G01	Line Terminals
MAM	1261C97G02	Load Terminals

### Standard Handle Reset Undervoltage Release.

For Standard and MARK 75<sup>®</sup> Breakers Field mountable on special frames listed on page 4, or replacement on breakers originally equipped with this type UVR.

For undervoltage protection. A solenoid device mounts within breaker case. Coil

must be energized before closing breaker. Trips breaker when voltage drops below 35 to 70% of coil rating. Picks up and seals in at 72 to 85% of coil rating. For line voltages up to 250 volts Dc or 600 volts Ac. Externally mounted resistors are supplied for certain ratings. Standard leads extend 18" outside of breaker. Longer leads may be specified.

Attach-ment Volts	For Right Hand Mounting		For Left Hand Mounting	
	Breaker Type	Style Numbers	Breaker Type	Style Numbers
24/60 120/60 120/60 <sup>Ⓓ</sup> 208/60 240/60 480/60 600/60 12/DC 24/DC 48/DC 60/DC 125/DC 250/DC	LAM, LAMH, HLAM	MAM, HMAM, MAMH	NBM, HNB, NBMH	HPBM
	4995D12G26	5672D69G26	4995D11G26	1290C94G13 <sup>Ⓔ</sup>
	4995D12G11	5672D69G11	4995D11G11	1229C35G05 <sup>Ⓔ</sup>
	1228C76G03 <sup>Ⓔ</sup>	.....	1229C35G03 <sup>Ⓔ</sup>	.....
	4995D12G12	5672D69G12	4995D11G12	.....
	4995D12G13	5672D69G13	4995D11G13	.....
	4995D12G14	5672D69G14	4995D11G14	.....
	4995D12G15	5672D69G15	4995D11G15	.....
	4995D12G16	5672D69G16	4995D11G16	.....
	4995D12G17	5672D69G17	4995D11G17	.....
	4995D12G18	5672D69G18	4995D11G18	.....
	4995D12G22	5672D69G22	4995D11G22	.....
	4995D12G19	5672D69G19	4995D11G19	.....
	4995D12G20	5672D69G20	4995D11G20	.....

### Shunt Trips

For tripping breaker from a remote point. A solenoid device mounts within breaker case. Breaker trips when coil is energized. A cut-off switch breaks the circuit to the momentary rated coil when breaker opens. Avail-

able for control voltages up to 250 volts Dc or 600 volts Ac. Voltage and frequency must be specified. Standard leads extend 18" outside of breaker. Longer leads may be specified.

Volts (Ac for 50-60 HZ)	Breaker Type				
	FBM, HFBM (Thermal Magnetic only)	KAM, HKAM, KAMH	LAM, HLAM, LAMH	MAM, HMAM, MAMH	NBM, HNB, NBMH
<b>Right Hand Mounting</b>					
600 Ac	2609D39G15	2605D15G15	2606D56G15	2606D57G15	2606D58G15
480 Ac	2609D39G16	2605D15G16	2606D56G16	2606D57G16	2606D58G16
240 Ac	2609D39G17	2605D15G17	2606D56G17	2606D57G17	2606D58G17
208 Ac	2609D39G18	2605D15G18	2606D56G18	2606D57G18	2606D58G18
120 Ac	2609D39G19	2605D15G19	2606D56G19	2606D57G19	2606D58G19
60 Ac	2609D39G20	2605D15G20	2606D56G20	2606D57G20	2606D58G20
48 Ac	2609D39G21	2605D15G21	2606D56G21	2606D57G21	2606D58G21
24 Ac	2609D39G22	2605D15G22	2606D56G22	2606D57G22	2606D58G22
250 Dc	2609D39G23	2605D15G23	2606D56G23	2606D57G23	2606D58G23
125 Dc	2609D39G24	2605D15G24	2606D56G24	2606D57G24	2606D58G24
60 Dc	2609D39G25	2605D15G25	2606D56G25	2606D57G25	2606D58G25
48 Dc	2609D39G26	2605D15G26	2606D56G26	2606D57G26	2606D58G26
24 Dc	2609D39G27	2605D15G27	2606D56G27	2606D57G27	2606D58G27
12 Dc	2609D39G28	2605D15G28	2606D56G28	2606D57G28	2606D58G28

### Left Hand Mounting

600 Ac	2609D39G01	2605D15G01	2606D56G01	2606D57G01	2606D58G01
480 Ac	2609D39G02	2605D15G02	2606D56G02	2606D57G02	2606D58G02
240 Ac	2609D39G03	2605D15G03	2606D56G03	2606D57G03	2606D58G03
208 Ac	2609D39G04	2605D15G04	2606D56G04	2606D57G04	2606D58G04
120 Ac	2609D39G05	2605D15G05	2606D56G05	2606D57G05	2606D58G05
60 Ac	2609D39G06	2605D15G06	2606D56G06	2606D57G06	2606D58G06
48 Ac	2609D39G07	2605D15G07	2606D56G07	2606D57G07	2606D58G07
24 Ac	2609D39G08	2605D15G08	2606D56G08	2606D57G08	2606D58G08
250 Dc	2609D39G09	2605D15G09	2606D56G09	2606D57G09	2606D58G09
125 Dc	2609D39G10	2605D15G10	2606D56G10	2606D57G10	2606D58G10
60 Dc	2609D39G11	2605D15G11	2606D56G11	2606D57G11	2606D58G11
48 Dc	2609D39G12	2605D15G12	2606D56G12	2606D57G12	2606D58G12
24 Dc	2609D39G13	2605D15G13	2606D56G13	2606D57G13	2606D58G13
12 Dc	2609D39G14	2605D15G14	2606D56G14	2606D57G14	2606D58G14

Ⓔ New design electrical reset UVR.

Ⓔ Auto reset type.

Ⓔ This is a special stud which includes six contact nuts for use where bus contact nuts must be used.

Ⓔ 150, 300 and 400 ampere frames only.

Ⓔ For breakers used with terminals and cable connections. Sold in packages of 10.

Ⓔ Not Underwriters' Laboratories, Inc. listed.

Ⓔ Included at no charge when ordered with stud.

Ⓔ 400 ampere LA studs of the same length have sufficient clearance; however, customer connections may make it necessary to use a short stud adjacent to a long stud.



October, 1975  
 Supersedes 29-128 T WE A  
 Pages 1-4 dated February, 1975, and  
 Supplement page 2.1 dated April 7, 1975

# AB Circuit Breakers for Mining Service

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**Seltronic Mining Circuit Breakers (3 Poles Only)**  
 The Seltronic mining breaker has been developed specifically for mining applications and features a solid state trip with a small, easily changed rating plug to establish continuous rating or to convert to magnetic only operation. The instantaneous trip is independently adjustable to meet federal requirements for trailing cable protection. Breakers are suitable for 50/60Hz Ac applications only,

600 volts max. Terminals not included in styles listed.

**Ordering Information**  
 Order frame and rating plug by style number from table.

**List Prices:** Refer to 29-020 P WE A  
 Order terminals from page 3.

**Rating Plugs for SELTRONIC Mining Circuit Breakers<sup>③</sup>**

Ampere Rating	Style Number	Breaker Type	Frame Style Number	Accessories (Included in Frame)	Mag. Trip Range, Amps. <sup>②</sup>
		LCM-150	2607D78G13	None	300-1000
		LCM-150	2607D78G14	120V Shunt Trip	300-1000
		LCM-150	2607D78G15	120V Undervoltage Release	300-1000
		LCM-150	2607D78G16	120V UVR with Remote Tripping Leads <sup>①</sup>	300-1000
<b>Type LCM-150 Breakers</b>					
75	Thermal Magnetic 2608D90G01	LCM-300	2607D78G09	None	600-1500
90	Thermal Magnetic 2608D90G02	LCM-300	2607D78G10	120V Shunt Trip	600-1500
100	Thermal Magnetic 2608D90G03	LCM-300	2607D78G11	120V Undervoltage Release	600-1500
125	Thermal Magnetic 2608D90G04	LCM-300	2607D78G12	120V UVR with Remote Tripping Leads <sup>①</sup>	600-1500
150	Thermal Magnetic 2608D90G05				
150	Magnetic Only 2608D90G06				
<b>Type LCM-300 Breakers</b>					
150	Thermal Magnetic 2608D90G07	LCM-600	2607D78G05	None	600-1500
175	Thermal Magnetic 2608D90G08	LCM-600	2607D78G06	120V Shunt Trip	600-1500
200	Thermal Magnetic 2608D90G09	LCM-600	2607D78G07	120V Undervoltage Release	600-1500
225	Thermal Magnetic 2608D90G10	LCM-600	2607D78G08	120V UVR with Remote Tripping Leads <sup>①</sup>	600-1500
250	Thermal Magnetic 2608D90G11	LCM-600	2607D78G01	None	800-2500
275	Thermal Magnetic 2608D90G12	LCM-600	2607D78G02	120V Shunt Trip	800-2500
300	Thermal Magnetic 2608D90G13	LCM-600	2607D78G03	120V Undervoltage Release	800-2500
300	Magnetic Only 2608D90G14	LCM-600	2607D78G04	120V UVR with Remote Tripping Leads <sup>①</sup>	800-2500
<b>Type LCM-600 Breakers</b>					
300	Thermal Magnetic 2608D90G15	MCM-800	2608D82G01	None	800-2500
350	Thermal Magnetic 2608D90G16	MCM-800	2608D82G02	120V Shunt Trip	800-2500
400	Thermal Magnetic 2608D90G17	MCM-800	2608D82G03	120V Undervoltage Release	800-2500
450	Thermal Magnetic 2608D90G18	MCM-800	2608D82G04	120V UVR with Remote Tripping Leads <sup>①</sup>	800-2500
500	Thermal Magnetic 2608D90G19	NCM-1200	2609D43G01	None	1600-5000
600	Thermal Magnetic 2608D90G20	NCM-1200	2609D43G02	120V Shunt Trip	1600-5000
600	Magnetic Only 2608D90G21	NCM-1200	2609D43G03	120V Undervoltage Release	1600-5000
		NCM-1200	2609D43G04	120V UVR with Remote Tripping Leads <sup>①</sup>	1600-5000
<b>Type MCM Breakers</b>					
400	Thermal Magnetic 2606D86G01				
500	Thermal Magnetic 2606D86G02				
600	Thermal Magnetic 2606D86G03				
700	Thermal Magnetic 2606D86G04				
800	Thermal Magnetic 2606D86G05				
800	Magnetic Only 2606D86G06				
<b>Type NCM Breakers</b>					
900	Thermal Magnetic 2606D86G07				
1000	Thermal Magnetic 2606D86G08				
1200	Thermal Magnetic 2606D86G09				
1200	Magnetic Only 2606D86G10				

① Remote tripping requires a normally open contact not supplied with the breaker.  
 ② The magnetic trip range does not change when rating plug is changed.  
 ③ Rating plugs are not interchangeable with standard Seltronic breakers.

WWW



**Standard Mining Service Circuit Breakers**

Specially developed mining service circuit breakers to meet trailing cable protection requirements of the Federal Mine Safety Law. The FBM through NBM breakers are rated at 600 volts Ac maximum. All breakers listed are complete with accessories indicated; terminals are not included. Trip elements are as indicated: M (magnetic only) ③ TM (thermal magnetic).

**Ordering Information**

Order complete breaker, with accessories, by one style number.  
Order terminals from page 3.

List Prices: Refer to 29-020 P WE A

Type Breaker	Style Number	Poles	Amps	Type Trip	Accessories (Included in Frame)	Mag. Trip Range, Amps	Type Breaker	Style Number	Poles	Amps	Type Trip	Accessories (Included in Frame)	Mag. Trip Range, Amps
FBM	2609D55G01	2	30	M	None	50-150	KAM	2609D60G14	3	225	TM	UVR②	500-1000
FBM	2609D55G02	2	50	M	None	66-190	KAM	2609D60G01	3	225	TM	Standard Shunt Trip②	300-700
FBM	2609D55G03	2	50	M	Terminal Shield	66-190	KAM	2609D60G02	3	225	TM	Standard Shunt Trip②	500-1000
FBM	2609D55G04	2	100	M	None	150-480	KAM	5685D48G38	3	225	TM	Shunt Trip①	300-700
FBM	2609D55G05	2	100	M	UVR②, Terminal Shield	150-480	KAM	5685D48G32	3	225	TM	Shunt Trip①	500-1000
HFBM	2609D55G06	2	50	M	Terminal Shield	66-190	KAM	2609D60G40	3	225	M	None	300-700
HFBM	2609D55G07	2	100	M	UVR②, Terminal Shield	150-480	KAM	2609D60G41	3	225	M	None	500-1000
FBM	2609D55G08	3	30	M	None	50-150	KAM	2609D60G42	3	225	M	UVR②	300-700
FBM	2609D55G14	3	30	TM	None	.....	KAM	2609D60G43	3	225	M	UVR②	500-1000
FBM	2609D55G09	3	30	M	Terminal Shield	50-150	LAM	2609D60G15	2	400	TM	UVR②	500-1000
FBM	2609D55G12	3	30	M	UVR②	50-150	LAM	5685D48G73	3	400	TM	None	800-1600
FBM	2609D55G10	3	30	M	UVR②, Terminal Shield	50-150	LAM	2609D60G16	3	400	TM	UVR②	800-1600
FBM	2609D55G15	3	30	TM	UVR②	.....	LAM	2609D60G03	3	400	TM	Standard Shunt Trip②	800-1600
FBM	2609D55G13	3	30	M	Standard Shunt Trip②	50-150	LAM	5685D48G26	3	400	TM	Shunt Trip①	800-1600
FBM	2609D55G11	3	30	M	Shunt Trip①, Term. Shield	50-150	LAM	2609D60G44	3	400	M	None	800-1600
FBM	2609D55G16	3	30	TM	Standard Shunt Trip②	.....	LAM	2609D60G45	3	400	M	UVR②	800-1600
FBM	2609D55G17	3	50	M	None	66-190							
FBM	2609D55G34	3	50	M	UVR②	66-190	MAM	2609D60G17	2	600	TM	UVR②	750-1500
FBM	2609D55G35	3	50	M	Terminal Shield	66-190	MAM	2609D60G18	2	800	TM	UVR②	1000-2000
FBM	2609D55G36	3	50	M	UVR②, Terminal Shield	66-190	MAM	5685D48G72	3	600	TM	None	1500-3000
FBM	2609D55G37	3	50	M	Standard Shunt Trip②	66-190	MAM	2609D60G19	3	600	TM	UVR②	1500-3000
FBM	2609D55G18	3	100	M	None	150-480	MAM	2609D60G04	3	600	TM	Standard Shunt Trip②	1500-3000
FBM	2609D55G28	3	100	TM	None	.....	MAM	5685D48G20	3	600	TM	Shunt Trip①	1500-3000
FBM	2609D55G19	3	100	M	Terminal Shield	150-480	MAM	2609D60G05	3	800	TM	Standard Shunt Trip②	2000-4000
FBM	2609D55G27	3	100	M	UVR②	150-480	MAM	5685D48G71	3	800	TM	None	2000-4000
FBM	2609D55G20	3	100	M	UVR②, Terminal Shield	150-480	MAM	2609D60G20	3	800	TM	UVR②	2000-4000
FBM	2609D55G29	3	100	TM	UVR②	.....	MAM	5685D48G14	3	800	TM	Shunt Trip①	2000-4000
FBM	2609D55G22	3	100	M	Shunt Trip①, Term. Shield	150-480	MAM	2609D60G46	3	800	M	None	1500-3000
FBM	2609D55G33	3	100	TM	Standard Shunt Trip②	.....	MAM	2609D60G47	3	800	M	UVR②	1500-3000
HFBM	2609D55G38	3	50	M	UVR②	66-190	MAM	2609D60G48	3	800	M	None	2000-4000
HFBM	2609D55G39	3	50	M	Terminal Shield	66-190	MAM	2609D60G49	3	800	M	UVR②	2000-4000
HFBM	2609D55G40	3	50	M	UVR②, Terminal Shield	66-190	NBM	2609D60G21	2	1000	TM	UVR②	1500-3000
HFBM	2609D55G41	3	50	M	Standard Shunt Trip②	66-190	NBM	2609D60G22	2	1200	TM	UVR②	2000-4000
HFBM	2609D55G30	3	100	M	None	150-480	NBM	5685D48G70	3	1000	TM	None	2500-5000
HFBM	2609D55G23	3	100	M	Terminal Shield	150-480	NBM	2609D60G23	3	1000	TM	UVR②	2500-5000
HFBM	2609D55G31	3	100	M	UVR②	150-480	NBM	2609D60G06	3	1000	TM	Standard Shunt Trip②	2500-5000
HFBM	2609D55G24	3	100	M	UVR②, Terminal Shield	150-480	NBM	5685D48G08	3	1000	TM	Shunt Trip①	2500-5000
HFBM	2609D55G32	3	100	M	Standard Shunt Trip②	150-480	NBM	2609D60G07	3	1200	TM	Standard Shunt Trip②	2500-5000
HFBM	2609D55G25	3	100	M	Shunt Trip①, Term. Shield	150-480	NBM	5685D48G69	3	1200	TM	None	2500-5000
KAM	2609D60G11	2	225	TM	UVR②	300-700	NBM	2609D60G24	3	1200	TM	UVR②	2500-5000
KAM	2609D60G12	2	225	TM	UVR②	500-1000	NBM	5685D48G02	3	1200	TM	Shunt Trip①	2500-5000
KAM	5685D48G75	3	225	TM	None	300-700	NBM	2609D60G50	3	1200	M	None	2500-5000
KAM	5685D48G74	3	225	TM	None	500-1000	NBM	2609D60G51	3	1200	M	UVR②	2500-5000
KAM	2609D60G13	3	225	TM	UVR②	300-700	NBM	2609D60G52	3	1200	M	None	2500-5000
							NBM	2609D60G53	3	1200	M	UVR②	2500-5000

① Shunt trip does not contain cut-off switch; rated 480 volts/60 Hz. Where these shunt trips are used, auxiliary protection is required to prevent burnout of shunt trip coil.  
 ② Rated 120 volts, 60 Hz.; undervoltage release is handle reset type.  
 ③ Types FBM and HFBM Magnetic only breakers for Dc applications should be ordered as "similar to listed style number" and calibration for Dc specified.





**1000 Volt Mining Service Circuit Breakers**

These are specially designed and treated three pole breakers, with accessories indicated, for application on 1000 volts Ac, 60 Hz. They have an interrupting capacity of 10,000

amps, asymmetrical or symmetrical, and are the same physical size as standard mining service 100 to 1200 amp circuit breaker frames. Terminals are not included, except for Type HFM.

Breaker Type	Style Number	Poles	Amps	Type Trip	Accessories (Included in Frame)	Mag. Trip Range, Amps.
HFM	5685D48G51	2	50	M	Terminal Shield	66-190
HFM	2609D60G10	3	30	M	None	50-150
HFM	5685D48G89	3	30	M	Terminal Shield	50-150
HFM	5685D48G90	3	30	M	UVR②, Terminal Shield	50-150
HFM	2609D60G08	3	100	M	None	150-480
HFM	2609D60G09	3	100	M	UVR②	150-480
HFM	5685D48G88	3	100	M	Terminal Shield	150-480
HFM	5685D48G45	3	100	M	UVR②, Terminal Shield	150-480
HKAM	5685D48G87	3	225	TM	None	300-700
HKAM	2609D60G25	3	225	TM	UVR①	300-700
HKAM	5685D48G86	3	225	TM	None	500-1000
HKAM	2609D60G26	3	225	TM	UVR①	500-1000
HKAM	2609D60G54	3	225	M	UVR①	300-700
HKAM	2609D60G55	3	225	M	UVR①	500-1000
HLAM	5685D48G85	3	400	TM	None	800-1600
HLAM	2609D60G27	3	400	TM	UVR①	800-1600
HLAM	2609D60G56	3	400	M	UVR①	800-1600
HMAM	5685D48G84	3	600	TM	None	1500-3000
HMAM	2609D60G28	3	600	TM	UVR①	1500-3000
HMAM	5685D48G83	3	800	TM	None	2000-4000
HMAM	2609D60G29	3	800	TM	UVR①	2000-4000
HMAM	2609D60G57	3	800	M	UVR①	1500-3000
HMAM	2609D60G58	3	800	M	UVR①	2000-4000
HNBM	5685D48G82	3	1000	TM	None	2500-5000
HNBM	2609D60G30	3	1000	TM	UVR①	2500-5000
HNBM	5685D48G81	3	1200	TM	None	2500-5000
HNBM	2609D60G31	3	1200	TM	UVR①	2500-5000
HNBM	2609D60G59	3	1200	M	UVR①	2500-5000
HNBM	2609D60G60	3	1200	M	UVR①	2500-5000

**Ordering Information**

Order complete breaker with accessories, as required, by style number. Order terminals at right.

**Trip Units for Standard Mining Service Circuit Breakers (See Frames Below)**

Conductor Size	Mag. Trip Range, Amps	Max Cont. Amps	Breaker Type	Catalog Numbers 2 Poles	Catalog Numbers 3 Poles③
# 6, # 4, # 3	300-700	225	KAM	5685D48G42	5685D48G40
# 4 - # 1	500-1000	225	KAM	5685D48G36	5685D48G34
# 4 - # 1	500-1000	400	LAM	5685D48G30	.....
# 2 - # 2/0	800-1600	400	LAM	.....	5685D48G28
# 2 - # 2/0	750-1500	600	MAM	5685D48G24	.....
2/0 - 500MCM	1500-3000	600	MAM	.....	5685D48G22
# 1 - 3/0	1000-2000	800	MAM	5685D48G18	.....
3/0 - 500MCM	2000-4000	800	MAM	.....	5685D48G16
2/0 - 500MCM	1500-3000	1000	NBM	5685D48G12	.....
4/0 - 500MCM	2500-5000	1000	NBM	.....	5685D48G10
3/0 - 500MCM	2000-4000	1200	NBM	5685D48G06	.....
4/0 - 500MCM	2500-5000	1200	NBM	.....	5685D48G04

**Special Mining Service Breaker Frames Only**

These frames are modified to accept handle reset undervoltage releases or standard shunt trips listed on page 4. Frames are identified as special mining service breaker frames by the orange nameplates. The only modification necessary by the user is filling exit holes for attachment leads. Use trip units and terminals listed above and right. Undervoltage release for MAM and NBM are not field mountable.

Type Breaker	Poles	Style Number
KAM④	2	2602D86G07
KAM④	3	2602D86G08
LAM⑤	2	2602D99G05
LAM⑤	3	2602D99G06
HKAM (1000 Volt)④	3	1264C99G01
HLAM (1000 Volt)⑤	3	1264C99G02

- ① Rated 120 volts, 60 Hz.; undervoltage release is handle reset type.
- ② Rated 120 volts, 60 Hz.; undervoltage release is auto reset type.
- ③ Three pole trip units are suitable for replacement in either 600 or 1000 volt breakers.
- ④ Frame modified for left hand mounting of UVR attachment.
- ⑤ Frame modified for right hand mounting of UVR attachment.

**Terminals for Mining Service Circuit Breakers**

Terminals are Underwriters' Laboratories, Inc., listed for wire type and range listed below. When used with aluminum conductors, use joint compound. FBM and HFMB terminals are included at no charge when ordered with the breaker. Price terminals from 29-120 T WE A section of Price List 29-020 P WE A.

**FBM, HFBM**

Max Amps	Package of 3 Line Terminals Style Number	Wire Range, Type
----------	--	------------------

Standard Pressure Type Terminals		
100	624B100G02	# 14-1/0 Al/Cu
150	624B100G17	# 4-4/0 Al/Cu
Optional Al/Cu Pressure Terminals		
50	624B100G10	# 14-# 4 Al/Cu
100	624B100G17	# 4-4/0 Al/Cu

**KAM, HKAM**

Max Amps	Terminal Cat. No.	Wire Range, Type No. of Cables
----------	-------------------	--------------------------------

Standard Pressure Terminals (Copper Only)		
225	T225LA	1 # 6-350 MCM
225	T225LBF	1 # 6-250 MCM
Optional Al/Cu Pressure Terminals		
225	TA225LA1	1 # 6-350 MCM Cu, or 1 # 4-350 MCM Al

**LAM, LCM-150, LCM-300, HLAM**

Max Amps	Terminal Cat. No.	Wire Range, Type No. of Cables
----------	-------------------	--------------------------------

Standard Copper Pressure Terminals		
225	T225LA	1 # 6-350 MCM Cu
225	T225LBF	1 # 6-250 MCM Cu
400	T401LA	1 # 4-250 MCM Cu, plus 1 3/0-600 MCM Cu

Optional Al/Cu Pressure Terminals		
225	TA225LA1	1 # 6-350 MCM Cu, or 1 # 4-350 MCM Al
400	TA400LA1	1 # 4-250 MCM Al/Cu, plus 1 3/0-600 MCM Al/Cu
400	TA401LA	1 600-750 MCM Al

**LCM-600**

Max Amps	Terminal Cat. No.	Wire Range, Type No. of Cables
----------	-------------------	--------------------------------

Standard Copper Pressure Terminals		
600	T600LA	2 250-500 MCM Cu
Optional Al/Cu Pressure Terminals		
600	TA600LA	2 250-500 MCM Al/Cu

**MAM, MCM, HMAM**

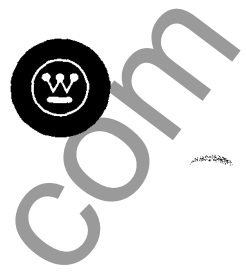
Max Amps	Terminal Cat. No.	Wire Range, Type No. of Cables
----------	-------------------	--------------------------------

Standard Copper Pressure Terminals		
350	T350MA	1 1 # -600 MCM Cu
600	T600MA1	2 2/0-500 MCM Cu
800	T800MA1	3 3/0-300 MCM Cu
Optional Al/Cu Pressure Terminals		
600	TA700MA1	2 # 1-500 MCM Al/Cu
800	TA800MA2	3 3/0-400 MCM Al/Cu
800	TA801MA	2 500-750 MCM Al/Cu

**NBM, NCM, HNBM**

Max Amps	Terminal Cat. No.	Wire Range, Type No. of Cables
----------	-------------------	--------------------------------

Standard Copper Pressure Terminals		
1000	T1000NB1	3 3/0-500 MCM Cu
1200	T1200NB1	4 3/0-400 MCM Cu
Alternate Al/Cu Pressure Terminals		
1000	TA1000NB1	3 3/0-400 MCM Al/Cu
1200	TA1200NB1	4 4/0-500 MCM Al/Cu
1200	TA1201NB1	3 500-750 MCM Al/Cu



**Accessories**

**Rear Connected Studs® for Mining Service Circuit Breakers**

For complete stud assembly, order a stud and appropriate tube based on thickness of customer's mounting panel. A short stud must be assembled adjacent to a long stud to maintain clearances required by Underwriters' Laboratories, Inc.® Two studs are required per pole. For List Prices, see 29-120 T WE A Section of Price List 29-020 P WE A.

Mounting Panel Thickness, Inches	Stud		Tube®		
	Length	Style Number	Length	Style Number	
<b>FBM, HFBM Breakers</b>	1	Short	451D874G01	1 <sup>1</sup> / <sub>16</sub>	32B9446H20
		Long	451D874G02	3 <sup>3</sup> / <sub>16</sub>	32B9446H24
	1 <sup>1</sup> / <sub>8</sub> -1 <sup>5</sup> / <sub>16</sub>	Short	451D874G01	1 <sup>3</sup> / <sub>8</sub>	32B9446H21
		Long	451D874G02	3 <sup>3</sup> / <sub>8</sub>	32B9446H25
	3 <sup>1</sup> / <sub>8</sub> -3 <sup>1</sup> / <sub>2</sub>	Short	451D874G01	1 <sup>1</sup> / <sub>2</sub>	32B9446H22
		Long	451D874G02	4 <sup>1</sup> / <sub>16</sub>	32B9446H26
3 <sup>1</sup> / <sub>2</sub> -3 <sup>1</sup> / <sub>4</sub>	Short	451D874G01	2	32B9446H23	
	Long	451D874G02	4 <sup>3</sup> / <sub>8</sub>	32B9446H27	
<b>KAM, HKAM Breakers</b>	3 <sup>1</sup> / <sub>4</sub> -1	Short	656D565G01	2 <sup>7</sup> / <sub>32</sub>	456D983H05
		Long	656D565G02	3 <sup>29</sup> / <sub>32</sub>	456D983H08
	3 <sup>1</sup> / <sub>2</sub> -3 <sup>1</sup> / <sub>4</sub>	Short	656D565G01	1 <sup>1</sup> / <sub>2</sub>	456D983H06
		Long	656D565G02	4 <sup>1</sup> / <sub>32</sub>	456D983H09
	3 <sup>1</sup> / <sub>2</sub> -3 <sup>1</sup> / <sub>2</sub>	Short	656D565G01	1 <sup>1</sup> / <sub>2</sub>	456D983H07
		Long	656D565G02	4 <sup>3</sup> / <sub>32</sub>	456D983H10

For insulated panels only: 2 required per pole

Stud Ampere Rating	Diameter, Inches and Thread	Extension Back of Breaker, Inches	Stud Style Number
<b>LAM, LCM, HLAM Breakers</b>			
225②	3/4-13	3 <sup>3</sup> / <sub>32</sub>	1241 345
225②	3/4-13	6 <sup>7</sup> / <sub>32</sub>	1241 346
225①②	3/4-13	4 <sup>3</sup> / <sub>32</sub>	1241 392
400②	3/4-16	5 <sup>1</sup> / <sub>32</sub>	05B7383G15
400②	3/4-16	7 <sup>1</sup> / <sub>32</sub>	05B7383G16
400②	3/4-16	10 <sup>1</sup> / <sub>32</sub>	05B7383G17
600	1 -12	5 <sup>29</sup> / <sub>32</sub>	314C960G07
600	1 -12	8 <sup>1</sup> / <sub>32</sub>	314C960G08
600	1 -12	10 <sup>2</sup> / <sub>32</sub>	314C960G09
<b>MAM, MCM, HMAM Breakers</b>			
225	3/4-13	3 <sup>3</sup> / <sub>32</sub>	314C960G01
400	3/4-16	5 <sup>29</sup> / <sub>32</sub>	314C960G04
400	3/4-16	8 <sup>1</sup> / <sub>32</sub>	314C960G05
400	3/4-16	10 <sup>2</sup> / <sub>32</sub>	314C960G06
600	1 -12	5 <sup>29</sup> / <sub>32</sub>	314C960G07
600	1 -12	8 <sup>1</sup> / <sub>32</sub>	314C960G08
600	1 -12	10 <sup>2</sup> / <sub>32</sub>	314C960G09
800	1 1/2-12	4 <sup>2</sup> / <sub>32</sub>	314C960G10
800	1 1/2-12	8 <sup>1</sup> / <sub>32</sub>	314C960G11
800	1 1/2-12	10 <sup>2</sup> / <sub>32</sub>	314C960G12
<b>NBM, NCM, HNBM Breakers</b>			
800	1 1/2-12	5 <sup>1</sup> / <sub>2</sub>	623B222G01
800	1 1/2-12	8	623B222G02
800	1 1/2-12	10 <sup>1</sup> / <sub>2</sub>	623B222G03
1200	1 1/2-12	5 <sup>1</sup> / <sub>2</sub>	373B375G04
1200	1 1/2-12	10 <sup>1</sup> / <sub>2</sub>	373B375G03

- ① This is a special stud which includes six contact nuts for use where bus contact nuts must be used.
- ② 400 ampere frame only.
- ③ 400 ampere LA studs of the same length have sufficient clearance; However customer connections may make it necessary to use a short stud adjacent to a long stud.
- ④ Not Underwriter's Laboratories Inc. listed.

**Line and Load Terminal Shields For Mining Breakers®**

Type Breaker	Style No.	Description
KAM	1261C93G01	Line Terminals
KAM	1262C46G01	Load Terminals
LAM-400	1261C95G01	Line Terminals
LAM-400	1262C48G01	Load Terminals
MAM	1261C97G01	Line Terminals
MAM	1261C97G02	Load Terminals

**Standard Handle Reset Undervoltage Release for Standard Mining Service Circuit Breakers**

Availability: KAM and LAM frames. Field mountable on special frames listed on page 3, or replacement on breakers originally equipped with this type U. V. R.

For undervoltage protection. A solenoid device mounts within breaker case. Coil must be energized before closing breaker. Trips breaker when voltage drops below 35 to 70% of coil rating. Picks up and seals in at 72 to 85% of coil rating. For line voltages up to 250 volts Dc or 600 volts Ac. Externally mounted resistors are supplied for certain ratings. Standard leads extend 18" outside of breaker. Longer leads may be specified.

Attachment Volts	For Right Hand Mounting		For Left Hand Mounting	
	Breaker Type		Breaker Type	
	KAM, HKAM	LAM, HLAM	KAM, HKAM	LAM, HLAM
	Style Numbers		Style Numbers	
24/60	4995D10G26	4995D12G26	4995D10G25	4995D12G25
120/60	4995D10G11	4995D12G11	4995D10G01	4995D12G01
208/60	4995D10G12	4995D12G12	4995D10G02	4995D12G02
240/60	4995D10G13	4995D12G13	4995D10G03	4995D12G03
480/60	4995D10G14	4995D12G14	4995D10G04	4995D12G04
600/60	4995D10G15	4995D12G15	4995D10G05	4995D12G05
12/DC	4995D10G16	4995D12G16	4995D10G06	4995D12G06
24/DC	4995D10G17	4995D12G17	4995D10G07	4995D12G07
48/DC	4995D10G18	4995D12G18	4995D10G08	4995D12G08
60/DC	4995D10G22	4995D12G22	4995D10G21	4995D12G21
125/DC	4995D10G19	4995D12G19	4995D10G09	4995D12G09
250/DC	4995D10G20	4995D12G20	4995D10G10	4995D12G10

**Shunt Trips for Standard Mining Service Circuit Breakers**

Availability: FBM thru NBM, field mountable, except FBM and HFBM magnetic only. Not for use on non-automatic breakers.

For tripping breaker from a remote point. A solenoid device mounts within breaker case. Breaker trips when coil is energized. A cut-off switch breaks the circuit to the momentary rated coil when breaker opens. Available for control voltages up to 250 volts Dc or 600 volts Ac. Voltage and frequency must be specified. Standard leads extend 18" outside of breaker. Longer leads may be specified.

Volts (Ac for 50-60 HZ)	Breaker Type (Thermal Magnetic only)	Breaker Type			
		FMB, HFBM	KAM, HKAM	LAM, HLAM	MAM, HLAM

Right Hand Mounting					
600 Ac	2609D39G15	2605D15G15	2606D56G15	2606D57G15	2606D58G15
480 Ac	2609D39G16	2605D15G16	2606D56G16	2606D57G16	2606D58G16
240 Ac	2609D39G17	2605D15G17	2606D56G17	2606D57G17	2606D58G17
208 Ac	2609D39G18	2605D15G18	2606D56G18	2606D57G18	2606D58G18
120 Ac	2609D39G19	2605D15G19	2606D56G19	2606D57G19	2606D58G19
60 Ac	2609D39G20	2605D15G20	2606D56G20	2606D57G20	2606D58G20
48 Ac	2609D39G21	2605D15G21	2606D56G21	2606D57G21	2606D58G21
24 Ac	2609D39G22	2605D15G22	2606D56G22	2606D57G22	2606D58G22
250 Dc	2609D39G23	2605D15G23	2606D56G23	2606D57G23	2606D58G23
125 Dc	2609D39G24	2605D15G24	2606D56G24	2606D57G24	2606D58G24
60 Dc	2609D39G25	2605D15G25	2606D56G25	2606D57G25	2606D58G25
48 Dc	2609D39G26	2605D15G26	2606D56G26	2606D57G26	2606D58G26
24 Dc	2609D39G27	2605D15G27	2606D56G27	2606D57G27	2606D58G27
12 Dc	2609D39G28	2605D15G28	2606D56G28	2606D57G28	2606D58G28

Left Hand Mounting					
600 Ac	2609D39G01	2605D15G01	2606D56G01	2606D57G01	2606D58G01
480 Ac	2609D39G02	2605D15G02	2606D56G02	2606D57G02	2606D58G02
240 Ac	2609D39G03	2605D15G03	2606D56G03	2606D57G03	2606D58G03
208 Ac	2609D39G04	2605D15G04	2606D56G04	2606D57G04	2606D58G04
120 Ac	2609D39G05	2605D15G05	2606D56G05	2606D57G05	2606D58G05
60 Ac	2609D39G06	2605D15G06	2606D56G06	2606D57G06	2606D58G06
48 Ac	2609D39G07	2605D15G07	2606D56G07	2606D57G07	2606D58G07
24 Ac	2609D39G08	2605D15G08	2606D56G08	2606D57G08	2606D58G08
250 Dc	2609D39G09	2605D15G09	2606D56G09	2606D57G09	2606D58G09
125 Dc	2609D39G10	2605D15G10	2606D56G10	2606D57G10	2606D58G10
60 Dc	2609D39G11	2605D15G11	2606D56G11	2606D57G11	2606D58G11
48 Dc	2609D39G12	2605D15G12	2606D56G12	2606D57G12	2606D58G12
24 Dc	2609D39G13	2605D15G13	2606D56G13	2606D57G13	2606D58G13
12 Dc	2609D39G14	2605D15G14	2606D56G14	2606D57G14	2606D58G14

- ⑤ Included at no charge when ordered with stud.
- ⑥ For breakers used with terminals and cable connections. Sold in packages of 10.



October, 1975  
 Supersedes 29-128 TWEA  
 Pages 5-6 dated April, 1975  
 Mailed to: E, D, C/1901, 1909/PL, DB

# AB Circuit Breakers for Mining Service

## Undervoltage Release Data

Undervoltage releases are calibrated to pick-up at 72-85% of rated voltage and dropout between 35-70% of rated voltage.

Voltage	Breaker Type		KAM, HKAM <sup>③</sup>			LAM, HLAM, MAM, HMAM, NBM, HNBM <sup>③</sup>			HFM <sup>③⑦</sup>			LCM, MCM, NCM		
	Line Amps	Series Resistor <sup>②</sup>	Total Va	Line Amps	Series Resistor <sup>②</sup>	Total Va	Line Amps	Series Resistor <sup>②</sup>	Total Va	Line Amps	Series Resistor <sup>②</sup>	Total Va	Line Amps	Total Va
600/60	.02	25,000	12.0	.02	17,500	12.0	.032	12,000 <sup>①</sup>	19.2	.01	60,000	6.	..	..
480/60	.016	25,000	7.7	.021	10,000	10.1	.033	12,000	15.9	.013	30,000	6.3	..	..
240/60	.021	6,000	5.1	.019	.....	4.6	.028	6,000	6.7	.013	.....	3.2	..	..
208/60	.019	6,000	4.0	.020	.....	4.2	.031	4,000	6.5	.018	.....	3.8	..	..
120/60	.023	.....	2.8	.021	.....	2.5	.029	.....	3.5	.023	.....	2.8	.05	6
24/60	.25	50	6.0	.095	.....	2.3	.207	.....	5.0	.....	.....	..	..	..
250/DC	.026	5,000	6.5	.024	.....	6.0	.03	6,000	7.5	.013	16,500	3.3	..	..
125/DC	.026	.....	3.3	.023	.....	2.9	.032	.....	4.0	.013	6,500	1.7	..	..
60/DC	.248	200	14.9	.025	.....	1.5	.069	.....	4.2	.....	.....	..	..	..
48/DC	.260	150	12.5	.020	.....	1.0	.066	.....	3.2	.012	600	.6	..	..
24/DC	.141	.....	3.4	.042	.....	1.0	.126	.....	3.0	.023	.....	.6	..	..
12/DC	.286	.....	3.5	.086	.....	1.0	.20	.....	2.4	.048	.....	.6	..	..

## Shunt Trip Coil Data

Volts	Breaker Type		HFM		LCM, MCM, NCM	
	All Except Those Listed at Right		Amps	Va	Amps	Va
600/60	.105	63	.....	.....	.....	..
480/60	.085	40.8	.35	168	.....	..
240/60	1.7	408	1.3	312	.....	..
208/60	1.4	291.2	.....	.....	.....	..
120/60	.88	105.6	4.5	540	.15	18
60/60	9.10	546	.....	.....	.....	..
48/60	7.5	360	.....	.....	.....	..
24/60	3.95	94.8	.....	.....	.....	..
250 Dc	.10	25	.24	60	.....	..
125 Dc	.975	121.9	.91	113.8	.....	..
60 Dc	.525	31.5	.....	.....	.....	..
48 Dc	8.0	384	2.2	105.6	.....	..
24 Dc	8.0	192	4.45	106.8	.....	..
12 Dc	6.0	72	8.9	106.8	.....	..

## Ac Interrupting Capacity, Symmetrical Amps

60 Hz AC Volts	Breaker Type		KAM	LAM, LCM, MAM, MCM, NBM, NCM	All 1000 Volt Breakers
	FBM <sup>④</sup>	HFBM			
240	18,000	65,000	25,000	42,000	.....
480	14,000	25,000	22,000	30,000	.....
600	14,000	18,000	22,000	22,000	.....
1000	.....	.....	.....	.....	10,000

## Special Dc Interrupting Capacity

Breaker Type	Interrupting Capacity (Amps) at 300-330 Volts Dc			
	Single Pole		Two Poles in Series <sup>⑥</sup>	
	.0-.15mH Inductance	.15-.5mH Inductance	.5-.9mH Inductance	2.4mH Inductance
FBM <sup>⑦</sup>	10,000	7,500	10,000	5,000
KAM	15,000	10,000	15,000	5,000
LAM	15,000	10,000	15,000	5,000
MAM	15,000	10,000	15,000	5,000
NBM	15,000	10,000	15,000	5,000

① 16,000 for Type MAM and HMAM.  
 ② Supplied for external customer mounting.  
 ③ These attachments not field mountable except on KAM, HKAM, LAM and HLAM.  
 ④ Thermal magnetic or magnetic only.  
 ⑤ Resistive circuit.  
 ⑥ Two poles in electrical series in ungrounded leg of circuit.  
 ⑦ FBM or HFBM magnetic only breakers require special calibration for Dc application.



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