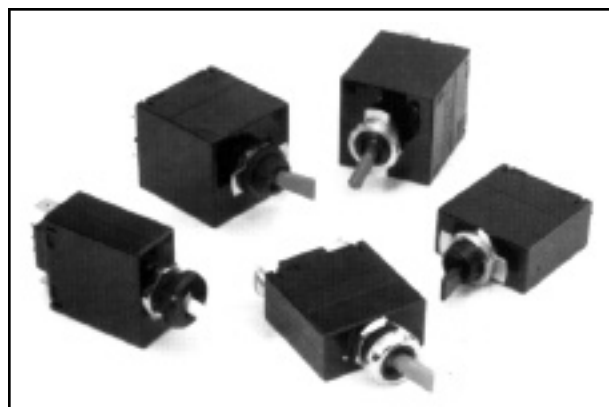


Ordering Scheme



PROD CODE
M

POLES
1 One
2 Two

FREQUENCY & DELAY

03⁵ No Delay Applicable
DC, 50/60Hz "Switch Only"
circuit option
30 DC, 50/60Hz Instantaneous
32 DC, 50/60Hz Short
34 DC, 50/60Hz Medium
92 DC, 50/60Hz Short, High Inrush
94 DC, 50/60Hz Medium, High Inrush

M-Series Handle

M M 2

- B - 34

ACTUATOR¹
M Paddle
N Baton

CIRCUIT

WITHOUT AUXILIARY SWITCH
A⁵ Switch Only (No Coil)/Maintained Contacts
B Series Trip (Current Coil)

Circuit
WITH AUXILIARY SWITCH - SILVER CONTACTS²
P⁵ Switch Only (Maintained Contacts) .060 Dia. Dbl. Solder Turret
Q⁵ Switch Only (Maintained Contacts) .058 Dia. Round Q.C.⁶
S Series Trip (Current Coil) .060 Dia. Dbl. Solder Turret
T Series Trip (Current Coil) .058 Dia. Round Q.C.⁶

WITH AUXILIARY SWITCH - GOLD CONTACTS²
2⁵ Switch Only (Maintained Contacts) .058 Dia. Round Q.C.⁶
4 Series Trip (Current Coil) .058 Dia. Round Q.C.⁶

NOTES

- Paddle: Baton: One handle per unit is provided in center of cover. Unless otherwise specified, all actuator styles have gloss finish.
- One Auxiliary Switch is supplied when specified. In two pole units, auxiliary switch is mounted in pole 1.
- This is only a partial listing of the many ratings available. For other ratings, please consult factory.
- For "Switch Only" (no coil) versions, select Current Rating Code from the following chart (Consult factory for special catalog number.)

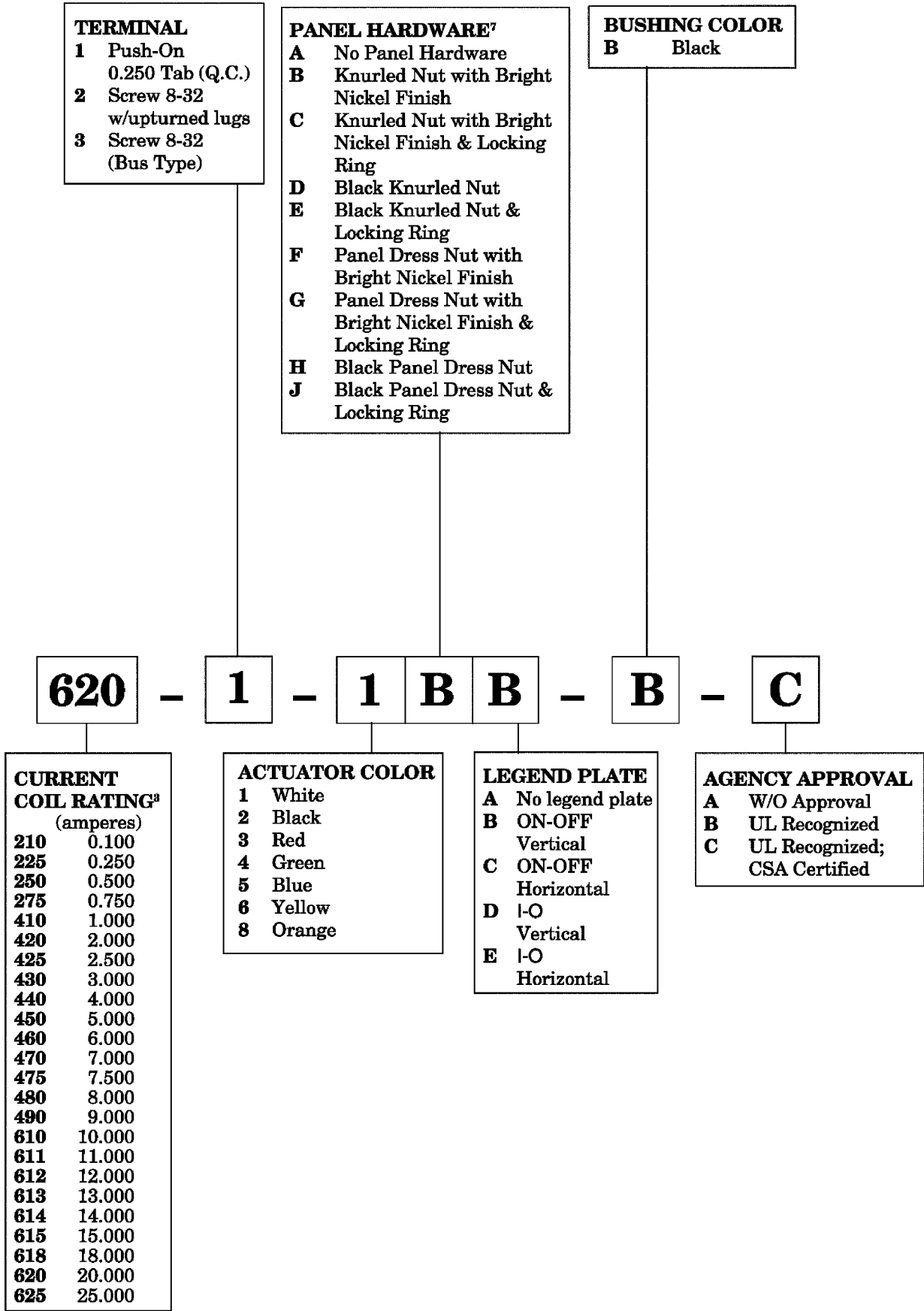
VOLTAGE			FULL LOAD AMP RATING		GENERAL PURPOSE AMP RATING		TUNGSTEN LAMP RATING		POLE BREAKING
MAX. RATING	FREQUENCY	PHASE	MAX. AMPS	CHOOSE CURRENT COIL RATING CODE	MAX. AMPS	CHOOSE CURRENT COIL RATING CODE	MAX. AMPS	CHOOSE CURRENT COIL RATING CODE	
32	DC	-	15	915	25	920	-	-	1
60	DC	-	-	-	7.5	-	-	-	1
65	DC	-	15	915	25	920	-	-	2
125	50/60 HZ	1	15	915	25	920	15	915	1
125	50/60 HZ	1	12	912	-	922	-	-	1
250	50/60 HZ	1	15	915	25	920	-	-	2

- Mates with AMP[®] .058 inch Dia. Pin Receptacles; P/N's 60983-1 (gold plated) and 60983-2 (tin plated).
- All units have 1 hex nut installed on bushing for use behind panel. Front panel hardware may be selected. If no front panel hardware is desired, select Panel Hardware Type Code 1.

M-Series Handle

6

CIRCUIT BREAKERS & FUSES



M-Series Rocker

Ordering Scheme

PROD CODE
M

POLES
1 One
2 Two

FREQUENCY & DELAY
03⁸ No Delay Applicable
DC, 50/60Hz "Switch
Only" circuit option
30 DC, 50/60Hz Instant
32 DC, 50/60Hz Short
34 DC, 50/60Hz Medium
92 DC, 50/60Hz Short,
High Inrush
94 DC, 50/60Hz Medium,
High Inrush

Figure G

ROCKER STYLE DESCRIPTION (DUAL LEGEND SHOWN)				
STYLE	INDICATE - "ON" (CODE-D)	INDICATE - "OFF" (CODE-E)	FLAT (CODES-B & G)	ANGLED (CODES-A & F)
VERTICAL				
HORIZONTAL				

M G 2 - B - 34 -

ACTUATOR¹
NON-ILLUMINATED ROCKER
SINGLE COLOR
A Angled
B Flat
VISI-ROCKER
D Indicate ON
E Indicate OFF
ILLUMINATED ROCKER
F Angled
G Flat

CIRCUIT

WITHOUT AUXILIARY SWITCH

A⁸ Switch Only (No Coil)/Maintained Contacts
B Series Trip (Current Coil)

Circuit

WITH AUXILIARY SWITCH - SILVER CONTACTS²

P⁸ Switch Only (Maintained Contacts) .060 Dia. Dbl. Solder Turret
Q⁸ Switch Only (Maintained Contacts) .058 Dia. Round Q.C.⁹
S Series Trip (Current Coil) .060 Dia. Dbl. Solder Turret
T Series Trip (Current Coil) .058 Dia. Round Q.C.⁹

WITH AUXILIARY SWITCH - GOLD CONTACTS²

2⁸ Switch Only (Maintained Contacts) .058 Dia. Round Q.C.⁹
4 Series Trip (Current Coil) .058 Dia. Round Q.C.⁹

NOTES

- Angled Rocker Style: Flat Rocker Style: Visi-Rocker Style:
- One rocker per unit is provided in center of bezel. Unless otherwise specified, all rocker styles have matte finish.
- Auxiliary Switch is not available on single pole illuminated styles.
- This is only a partial listing of the many amp ratings available. For other ratings, please consult factory.
- For neon bulb applications at 120VAC, a 47K, 1/4 WATT, external resistor must be supplied by customer. For 250 VAC applications, a 150K 1/4 WATT, external resistor must be supplied by customer.
- For LED (DC or rectified AC) applications the LED is supplied mounted in the center of the rocker actuator with electrical characteristics as follows: 100 millicandela at 20 mA; Maximum power dissipation = 75 mW at 25°C; Typical forward voltage = 2.1V at 20mA; Typical reverse current = 100 uA at 3V; Note: Customer is required to supply the proper external resistor limiting current to above values.
- When visi-rocker is specified, the visi portion of the rocker can not be the same color as the bezel. The remainder of the rocker, however, will be the same color as the bezel. A legend is mandatory on all visi-rockers.
- If legend not desired, choose Rocker Legend Type Code 1.
- For "switch only" (no coil) version, select Current Coil Rating Code from table B from page 16.
- Mates with AMP[®] .058 inch Dia. Pin Receptacles; P/N's 61983-1 (gold plated) and 61986-1 (tin plated).
- Rocker color for LED's and green neon lamp must be clear, smoke gray, white translucent, or match color of LED or lamp.
- Dual = I-O / ON-OFF combination.
- Screw Terminals are VDE certified only with use of ring terminal attached to wire.
- Consult factory for VDE certified constructions.

M-Series Rocker

6

CIRCUIT BREAKERS & FUSES

TERMINAL

- 1** Push-On
0.250 Tab (Q.C.)
- 2¹²** Screw 8-32
w/upturned lugs
- 3¹²** Screw 8-32
(Bus Type)

ROCKER & LEGEND COLORS

ILLUMINATED ROCKER¹⁰

ROCKER	LEGEND ⁷
A Clear	White
B Red Transparent	White
C Green Transparent	White
D Amber Transparent	White
E Smoke Gray Transparent	White
F White Translucent	Black

NON-ILLUMINATED ROCKER SINGLE COLOR

ROCKER	LEGEND ⁷
1 White	Black
2 Black	White
3 Red	White
8 Orange	Black

VISI-ROCKER

VISI ⁶ & LEGEND	ROCKER ⁶
1 White	[Remainder of rocker same color as bezel]
2 Black	
3 Red	
4 Green	

BEZEL COLOR/STYLE⁶ WITHOUT ROCKERGUARD

- A** White
- B** Black
- G** Gray

WITH ROCKERGUARD

- 1** White
- 2** Black
- 7** Gray

620

-

1

-

H

C

6

-

7

-

C

CURRENT COIL RATING³ (amperes)

210	0.100
225	0.250
250	0.500
275	0.750
410	1.000
420	2.000
425	2.500
430	3.000
440	4.000
450	5.000
460	6.000
470	7.000
475	7.500
480	8.000
490	9.000
610	10.000
611	11.000
612	12.000
613	13.000
614	14.000
615	15.000
618	18.000
620	20.000
625	25.000

ROCKER ILLUMINATION

- A** NON-ILLUMINATED
(single color & Visi-Rocker
options only)
- B⁴** Neon (w/o resistor)
120VAC/250VAC
- C^{4,10}** Green Glow Neon
(w/o resistor)
120VAC/250VAC
- D^{5,10}** Red LED (w/o resistor)
- E¹⁰** Red LED (w/ resistor)
4-8 VDC
- F¹⁰** Red LED (w/ resistor)
9-16 VDC
- G^{5,10}** Green LED (w/o resistor)
- H¹⁰** Green LED (w/ resistor)
4-8 VDC
- J¹⁰** Green LED (w/ resistor)
9-16 VDC
- K^{5,10}** Amber LED (w/o resistor)
- L¹⁰** Amber LED (w/ resistor)
4-8 VDC
- M¹⁰** Amber LED (w/ resistor)
9-16 VDC

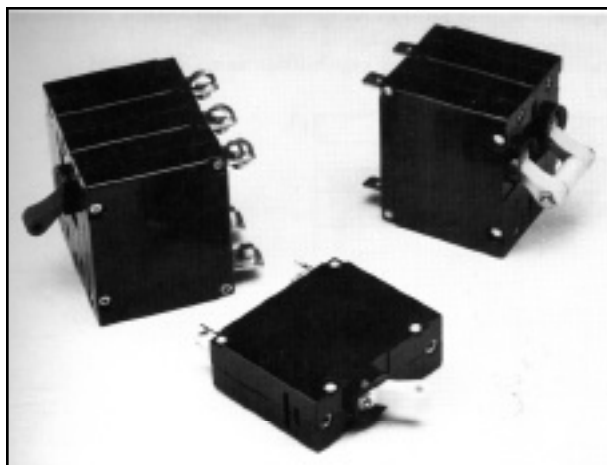
ROCKER LEGEND¹¹

- 1** No legend
(Single color or
illuminated
rocker options
only)
- 2** ON-OFF
Vertical
- 3** ON-OFF
Horizontal
- 4** I-O
Vertical
- 5** I-O
Horizontal
- 6** Dual
Vertical
- 7** Dual
Horizontal

AGENCY APPROVAL¹³

- A** W/O Approval
- B** UL Recognized
- C** UL Recognized;
CSA Certified
- D** UL Recognized;
CSA and VDE
Certified

Ordering Scheme



PROD CODE
A

POLES²

1 One
2 Two
3 Three
4 Four
5 Five
6 Six

AUXILIARY SWITCH⁴

0 w/o Aux Switch
1 0.093 Q.C. Term.
2 0.110 Q.C. Term.
3 0.139 Solder Lug
4 0.093 Q.C. Term.
w/ Gold Contacts

A-Series Handle

A

A

3

-

B

0

-

ACTUATOR

A^{1a} Handle, one per pole
B^{1b} Handle, one per multipole unit
S^{1c} Mid-Trip Handle, one per pole
T^{1c} Mid-Trip Handle, one per pole
and alarm switch

CIRCUIT

A^{3a} Switch Only (No Coil)
B Series Trip (Current)
C Series Trip (Voltage)
D^{3b} Shunt Trip (Current)
E^{3b} Shunt Trip (Voltage)
F^{3b} Relay Trip (Current)
G^{3b} Relay Trip (Voltage)

NOTES

- 1a. Actuator Option A: (One-Six Poles) Handle tie pin, spacer(s) and retainers provided unassembled with multipole units.
- 1b. Actuator Option B: Handle location as viewed from front of panel: 2 pole - left pole; 3 pole - center pole; 4 pole - two handles at center poles; 5 pole - three handles at center poles; 6 pole - four handles at center poles.
- 1c. Handle moves to mid-position only upon electrical trip of circuit breaker. Actuator code S available with circuit codes B, C, D, E, F, G, H & K. When actuator code T is specified, handle moves to mid-position and alarm switch activates only upon electrical trip of circuit breaker. Available with circuit codes B & C only.
2. Standard multipole units have all poles identical except when specifying auxiliary switch - (see Note 4 and Fig. A) and/or mixed poles (consult factory).
- 3a. "Switch Only" available to 50 amps and six poles. For 30 amps and less, select Current Rating Code 630. For 31-50 amps, select Current Rating Code 650.
- 3b. Available with Terminal Codes 1 and 2 only. Current type limited to 30 amps maximum.
4. Auxiliary switch available on Series Trip and Switch Only circuits to 30 amps. On multipole units, only one auxiliary switch is normally supplied, mounted in extreme right pole per Fig. A.
- 5a. Voltage coils not rated for continuous duty. Available only with Delay Codes 10 and 20.
- 5b. Available to 50 amps max. and with Circuit Codes B & D only.
6. For non-standard voltage or current ratings consult factory.
7. Series Trip current ratings of 35, 40 and 50 amps limited to a maximum of two poles.
8. Screw terminals are recommended on current ratings greater than 20 amps. Ratings 35, 40 and 50 amps available with Terminal Code 5 only.
9. Standard actuator colors are black and white.
10. Terminal barriers available, consult factory.

A-Series Handle

6

CIRCUIT BREAKERS & FUSES

COIL RATING ^a		
CURRENT COIL		
	AMPERES	
S E L E C T O N E	210	0.100
	225	0.250
	250	0.500
	275	0.750
	410	1.000
	425	2.500
	450	5.000
	475	7.500
	610	10.000
	615	15.000
	620	20.000
	625	25.000
	630	30.000
	635 ⁷	35.000
	640 ⁷	40.000
	650 ⁷	50.000
	VOLTAGE COIL ^{5a}	
	RATED MIN. TRIP	
	VOLTS	VOLTS
	A06	6 DC 5 DC
	A12	12 DC 10 DC
	K20	120 AC 65 AC

ACTUATOR COLOR^a

	COLOR	LEGEND
B	White	ON-OFF (Black)
D	Black	ON-OFF (White)
G	Red	ON-OFF (White)
N	Yellow	ON-OFF (Black)

AGENCY APPROVAL

A	W/O Approval
B	UL Recognized
C	UL Recognized; CSA Certified
I	UL Recognized Standard 1077; UL Recognized Standard 1500 Ignition protected; CSA Certified

10 - **450**

1 **B** **1**

- **C**

FREQUENCY AND DELAY

03	DC, 50/60Hz When Delay is not applicable, i.e. Switch Only circuit option.
10 ^{5a}	DC Instantaneous
11	DC Ultra Short
12	DC Short
14	DC Medium
16	DC Long
20 ^{5a}	50/60Hz Instantaneous
21	50/60Hz Ultra Short
22	50/60Hz Short
24	50/60Hz Medium
26	50/60Hz Long
32	DC, 50/60Hz Short
34	DC, 50/60Hz Medium
36	DC, 50/60Hz Long
42 ^{5b}	50/60Hz Short (Hi-Inrush)
44 ^{5b}	50/60Hz Medium (Hi-Inrush)
46 ^{5b}	50/60Hz Long (Hi-Inrush)
52 ^{5b}	DC Short (Hi-Inrush)
54 ^{5b}	DC Medium (Hi-Inrush)
56 ^{5b}	DC Long (Hi-Inrush)

TERMINAL^{8, 10}

- 1 Push-On; 0.250 Tab (Q.C.)
- 2 Screw 8-32 w/Upturned Lugs
- 3 Screw 8-32 (Bus Type)
- 4 Screw 10-32 w/Upturned Lugs
- 5 Screw 10-32 (Bus Type)

PRINTED CIRCUIT BOARD
TERMINAL AVAILABLE;
CONSULT FACTORY

MOUNTING

- 1 Threaded insert 6-32 x 0.195 inches deep 2/pole
- 2¹⁰ Threaded insert ISO M3 x 5mm deep 2/pole
- 5 Front panel Snap-in, 0.75 inch wide bezel/pole
- 7¹⁰ Front panel Snap-in, 0.96 inch wide bezel on single pole units. .105 inch bezel overhang/side on multi-pole units

Ordering Scheme

A-Series Rocker

Figure B

ROCKER STYLE DESCRIPTIONS			
	INDICATE "ON"	INDICATE "OFF"	SINGLE COLOR
VERTICAL STYLE	<p>CODE "C"</p>	<p>CODE "F"</p>	<p>CODE "J"</p>
HORIZONTAL STYLE	<p>CODE "D"</p>	<p>CODE "G"</p>	<p>CODE "K"</p>

SHADED AREAS IDENTIFY INDICATE COLOR LOCATION

PROD CODE
A

POLES²
1 One
2 Two
3 Three

AUXILIARY SWITCH⁴
0 w/o Aux Switch
1 0.093 Q.C. Term.
2 0.110 Q.C. Term.
3 0.139 Solder Lug
4 0.093 Q.C. Term.
w/ Gold Contacts

A

F

1

-

B

0

-

NOTES

- For description of actuator styles and legend positions refer to Figure B. Push to Reset actuators have Off portion of rocker shrouded.
- Multipole units have one rocker per unit. Rocker location as viewed from front of panel as follows: 2 pole - left pole; 3 pole - center pole. Standard multipole units have all poles identical except when specifying auxiliary switch (See note 4 and Fig A) and/or mixed poles.
- "Switch Only" available to 50 amps and three poles. For 30 amps and less, select Current Rating Code 630. For 31- 50 amps, select Current Rating Code 650.
- Available with Terminal Codes 1 and 2 only. Current type limited to 30 amps maximum.
- Auxiliary switch available on Series Trip and Switch Only circuits to 30 amps. On multipole units, only one auxiliary switch is normally supplied, mounted in extreme right pole per Fig. A.
- Voltage coils can be used on Series, Shunt, or Relay trip Dump circuit applications. These voltage coils are rated for intermittent pulse duty and are only available with delay codes 10 & 20.
- Available to 50A (UL/CSA), 30A (VDE) and Circuit Codes B & D only.
- For other voltage or current ratings consult factory.
- Screw terminals are recommended by Carlingswitch and are required by VDE on current ratings greater than 20 amps.
- Ratings 35, 40 & 50 amps available with Terminal Code 5 only.
- a. Color shown is Visi and Legend color with remainder of rocker black.
- b. DUAL=ON-OFF/I-O legend.
- c. Legend on Push-To-Reset Bezel/Shroud is white when single color rocker type is ordered. When visi-rocker types are ordered, the legend matches the visi-color.
- d. Rockerguard available with actuator codes: C,D,F,G,J, and K.
- e. Push-To-Reset available with actuator codes: N,O,R and U.
- f. Consult factory for VDE certified constructions.
- Terminal Barrier available; consult factory.

ACTUATOR¹

VISI-ROCKER¹⁰

- C** Indicate ON, Vertical Legends
- D** Indicate ON, Horizontal Legends
- F** Indicate OFF, Vertical legends
- G** Indicate OFF, Horizontal Legends

SINGLE COLOR ROCKER¹⁰

- J** Vertical Legends
- K** Horizontal Legends

PUSH TO RESET (VISI-ROCKER)^{9E}

- N** Indicate Off, Vertical Legends
- O** Indicate Off, Horizontal Legends

SINGLE COLOR ROCKER^{9E}

- R** Vertical Legends
- U** Horizontal Legends

CIRCUIT

- A^{3a}** Switch Only (No Coil)
 - B** Series Trip (Current)
 - C** Series Trip (Voltage)
 - D^{3b}** Shunt Trip (Current)
 - E^{3b}** Shunt Trip (Voltage)
 - F^{3b}** Relay Trip (Current)
 - G^{3b}** Relay Trip (Voltage)
- Dual coil construction available - consult factory.

A-Series Rocker

6

CIRCUIT BREAKERS & FUSES

COIL RATING⁶

CURRENT COIL
AMPERES

	210	0.100
	225	0.250
S	250	0.500
E	275	0.750
L	410	1.000
E	425	2.500
C	450	5.000
T	475	7.500
	610	10.000
O	615	15.000
N	620	20.000
E	625 ⁷	25.000
	630 ⁷	30.000
	635 ^{7,8}	35.000
	640 ^{7,8}	40.000
	650 ^{7,8}	50.000

VOLTAGE COIL^{5a}

	VOLTS	MIN. TRIP VOLTS
A06	6 DC	5 DC
A12	12 DC	10 DC
K20	120 AC	65 AC
L40	240 AC	130 AC

ACTUATOR COLOR¹

SELECT ONE

SINGLE COLOR ROCKER

ROCKER

COLOR	LEGEND ^{9b}
C Black	I-O (White)
D Black	ON-OFF (White)
2 Black	Dual (White)
F Red	I-O (White)
G Red	ON-OFF (White)
3 Red	Dual (White)
H Green	I-O (White)
J Green	ON-OFF (White)
4 Green	Dual (White)
K Blue	I-O (White)
L Blue	ON-OFF (White)
5 Blue	Dual (White)
M Yellow	I-O (Black)
N Yellow	ON-OFF (Black)
6 Yellow	Dual (Black)
P Gray	I-O (Black)
Q Gray	ON-OFF (Black)
7 Gray	Dual (Black)
R Orange	I-O (Black)
S Orange	ON-OFF (Black)
8 Orange	Dual (Black)

VISI-ROCKER

VISI

COLOR ^{9a}	LEGEND ^{9b}
A White	I-O (White)
B White	ON-OFF (White)
1 White	Dual (White)
F Red	I-O (Red)
G Red	ON-OFF (Red)
3 Red	Dual (Red)
H Green	I-O (Green)
J Green	ON-OFF (Green)
4 Green	Dual (Green)

AGENCY APPROVAL

A	W/O Approval
B	UL Recognized
C	UL Recognized; CSA Certified
D ¹⁰	UL Recognized; CSA & VDE Certified
I	UL 1500 Ignition Protected; UL Recognized; CSA Certified

24

-

630

-

2

3

1

-

D

FREQUENCY AND DELAY

03	DC, 50/60Hz When Delay is not applicable, i.e. Switch Only circuit option.
10 ^{5a}	DC Instantaneous
11	DC Ultra Short
12	DC Short
14	DC Medium
16	DC Long
20 ^{5a}	50/60Hz Instantaneous
21	50/60Hz Ultra Short
22	50/60Hz Short
24	50/60Hz Medium
26	50/60Hz Long
32	DC, 50/60Hz Short
34	DC, 50/60Hz Medium
36	DC, 50/60Hz Long
42 ^{5b}	50/60Hz Short (Hi-Inrush)
44 ^{5b}	50/60Hz Medium (Hi-Inrush)
46 ^{5b}	50/60Hz Long (Hi-Inrush)
52 ^{5b}	DC Short (Hi-Inrush)
54 ^{5b}	DC Medium (Hi-Inrush)
56 ^{5b}	DC Long (Hi-Inrush)

TERMINAL^{7,11}

1	Push-On 0.250 Tab (Q.C.)
2	Screw 8-32 w/ Upturned Lugs
3	Screw 8-32 (Bus Type)
4	Screw 10-32 w/ Upturned Lugs
5 ⁸	Screw 10-32 (Bus Type)

PRINTED CIRCUIT BOARD TERMINAL AVAILABLE;
CONSULT FACTORY

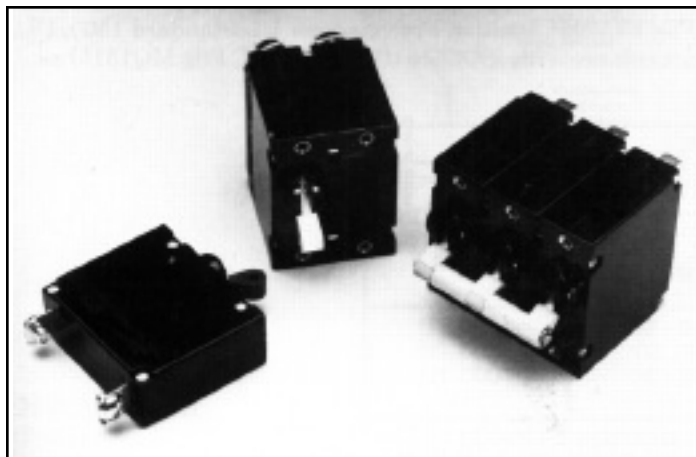
MOUNTING¹¹

STANDARD ROCKER BEZEL

1	Threaded insert 6-32x0.195 in. deep
2	Threaded insert ISO M3x5mm deep
ROCKERGUARD BEZEL ^{9d} or PUSH-TO-RESET BEZEL ^{9c,9e}	
3	Threaded insert 6-32 x0.195 in. deep
4	Threaded insert ISO M3x5mm deep

B-Series

Ordering Scheme



PROD CODE
B

POLES²
1 One
2 Two
3 Three
4 Four
5 Five
6 Six

AUXILIARY SWITCH⁴
0 w/o Aux Switch
2 0.110 Q.C. Term.
3 0.139 Solder Lug

B A 2 - B 0 -

ACTUATOR


A^{1a} Handle, one per pole
B^{1b} Handle, one per multipole unit
S^{1c} Mid-Trip Handle, one per pole
T^{1c} Mid-Trip Handle, one per multipole unit

CIRCUIT

A^{3a} Switch Only (No Coil)
B Series Trip (Current)
C Series Trip (Voltage)
D^{3b} Shunt Trip (Current)
E^{3b} Shunt Trip (Voltage)
F^{3b} Relay Trip (Current)
G^{3b} Relay Trip (Voltage)

DUAL COIL AVAILABLE
CONSULT FACTORY

NOTES

- 1a. Actuator Option A: Handle tie pin, spacer(s) and retainers provided unassembled with multipole units.
- 1b. Actuator Option B: Handle location as viewed from front of panel:
2 pole - left pole; 3 pole - center pole; 4 pole - two handles at center poles; 5 pole - three handles at center poles; 6 pole - four handles at center poles.
- 1c. Handle moves to mid-position only upon electrical trip of the circuit breaker. Actuator code S available with circuit codes B, C, D, E, F & G. When actuator code T is specified: Handle moves to mid-position and alarm switch activates only upon electrical trip of the circuit breaker, available with circuit codes B & C.
2. Standard multipole units have all poles identical except when specifying auxiliary switch - (see Note 4 and Fig. A) and/or mixed poles (consult factory).
- 3a. Switch Only available to 50 amps and six poles. For 30 amps and less, select Current Rating Code 630. For 31-50 amps, select Current Rating Code 650.
- 3b. Available with Terminal Codes 1 and 2 only. Current type limited to 30 amps maximum.
4. Auxiliary switch available on Series Trip and Switch Only circuits to 50 amps. On multipole units, only one auxiliary switch is normally supplied, mounted in extreme right pole per Figure A.
- 5a. Voltage coils not rated for continuous duty. Available only with Delay Codes 10 and 20 and Circuit Codes C, E & G..
- 5b. Available to 50 amp maximum and Circuit Codes B & D only.
6. For other voltage or current ratings consult factory.
7. Series Trip current ratings of 35, 40 and 50 amps limited to a maximum of two poles.
8. Screw terminals are recommended on current ratings greater than 20 amps. Ratings 35, 40 and 50 amps available with Terminal Code 5 only.
9. Standard actuator colors are black and white. DUAL = I - O / ON-OFF combination.
10. Terminal barriers available, consult factory.
11. Consult factory for VDE certified  constructions.

6

CIRCUIT BREAKERS & FUSES

COIL RATING ⁶		
CURRENT COIL		
	AMPERES	
S E L E C T O N E	210	0.100
	225	0.250
	250	0.500
	275	0.750
	410	1.000
	425	2.500
	450	5.000
	475	7.500
	610	10.000
	615	15.000
	620	20.000
	625	25.000
	630	30.000
	635 ⁷	35.000
	640 ⁷	40.000
	650 ⁷	50.000
VOLTAGE COIL ^{5a}		
	RATING	MIN. TRIP VOLTS
A06	6 DC	5 DC
A12	12 DC	10 DC
K20	120 AC	65 AC
L40	240 AC	130 AC

ACTUATOR COLOR ⁹		
	COLOR	LEGEND
1	White	Dual (Black)
2	Black	Dual (White)
3	Red	Dual (White)
6	Yellow	Dual (Black)

AGENCY APPROVAL	
A	W/O Approval
B	UL Recognized
C	UL Recognized CSA Certified
D ¹¹	UL Recognized CSA & VDE Certified
I ¹¹	UL Recognized Std 1077 UL Recognized Std 1500 (Ignition Protection) CSA Certified

10

-

450

-

1

2

1

-

D

FREQUENCY AND DELAY

03	DC, 50/60Hz When Delay is not applicable, i.e. Switch Only circuit option.
10 ^{5a}	DC Instantaneous
11	DC Ultra Short
12	DC Short
14	DC Medium
16	DC Long
20 ^{5a}	50/60Hz Instantaneous
21	50/60Hz Ultra Short
22	50/60Hz Short
24	50/60Hz Medium
26	50/60Hz Long
32	DC, 50/60Hz Short
34	DC, 50/60Hz Medium
36	DC, 50/60Hz Long
42 ^{5b}	50/60Hz Short (Hi-Inrush)
44 ^{5b}	50/60Hz Medium (Hi-Inrush)
46 ^{5b}	50/60Hz Long (Hi-Inrush)
52 ^{5b}	DC Short (Hi-Inrush)
54 ^{5b}	DC Medium (Hi-Inrush)
56 ^{5b}	DC Long (Hi-Inrush)

TERMINAL⁸

- 1 Push-On 0.250 Tab (Q.C.)
- 2 Screw 8-32 w/ Upturned Lugs
- 3 Screw 8-32 (Bus Type)
- 4 Screw 10-32 w/ Upturned Lugs
- 5 Screw 10-32 (Bus Type)

PRINTED CIRCUIT BOARD TERMINAL AVAILABLE; CONSULT FACTORY

MOUNTING

- 1¹⁰ Threaded insert, 6-32 x 0.195 inches deep - 2/pole
- 2 Threaded insert, ISO M3 x 5mm deep - 2/pole
- 5¹⁰ Front Panel Snap-In, 0.75 inch wide Bezel/Pole
- 7¹⁰ Front Panel Snap-In, 0.96 inch wide Bezel on Single Pole units. .105 inch Bezel Overhang Per Side on Multi-Pole units.

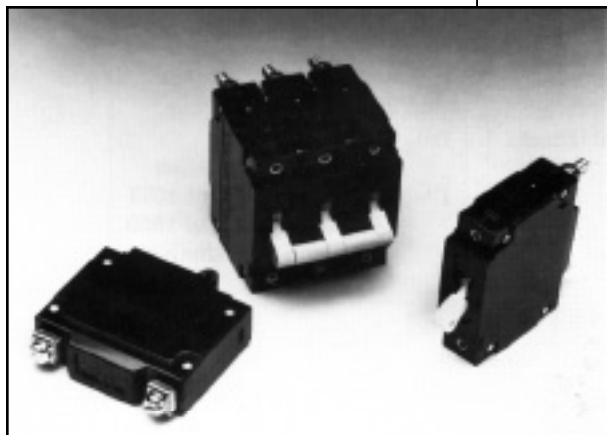
C-Series Handle

Ordering Scheme

PROD CODE
C

POLES²
1 One
2 Two
3 Three
4 Four
5 Five
6 Six

AUXILIARY/ALARM SWITCH⁴
0 w/o Aux Switch
2 S.P.D.T., 0.110 Q.C. Term.
3 S.P.D.T., 0.139 Solder Lug
4 S.P.D.T., 0.110 Q.C. Term.
(Gold Contacts)
8 S.P.S.T., (N.O.) 0.187
Q.C. Term.



C A 3 - B 0 - 10 -

ACTUATOR

A^{1a} Handle, one per pole
B^{1b} Handle, one per multipole unit
S^{1c} Mid-Trip Handle, one per pole
T^{1c} Mid-Trip Handle and Alarm
Switch (Handle, one per pole)

CIRCUIT

A³ Switch Only (No Coil)
B Series Trip (Current)
C Series Trip (Voltage)
D Shunt Trip (Current)
E Shunt Trip (Voltage)
F Relay Trip (Current)
G Relay Trip (Voltage)

DUAL COIL AVAILABLE
CONSULT FACTORY

FREQUENCY AND DELAY

03 DC, 50/60Hz When Delay is
not applicable, i.e. Switch
Only circuit option.
10^{5a} DC Instantaneous
11 DC Ultra Short
12 DC Short
14 DC Medium
16 DC Long
20^{5a} 50/60Hz Instantaneous
21 50/60Hz Ultra Short
22 50/60Hz Short
24 50/60Hz Medium
26 50/60Hz Long
32 DC, 50/60Hz Short
34 DC, 50/60Hz Medium
36 DC, 50/60Hz Long
42^{5b} 50/60Hz Short, Hi-Inrush
44^{5b} 50/60Hz Medium, Hi-Inrush
46^{5b} 50/60Hz Long, Hi-Inrush
52^{5b} DC, Short, Hi-Inrush
54^{5b} DC, Medium, Hi-Inrush
56^{5b} DC, Long, Hi-Inrush

C-Series Handle

6

CIRCUIT BREAKERS & FUSES

- COIL RATING ⁶ -		VOLTAGE COIL ^{5a}	
CURRENT COIL	AMPERES		MIN. TRIP
210	0.100		
225	0.250		
250	0.500		
275	0.750		
410	1.000		
425	2.500		
450	5.000		
475	7.500		
610	10.000		
615	15.000		
620	20.000		
625	25.000		
630	30.000		
635	35.000		
640	40.000		
650	50.000		
660 ⁷	60.000		
670 ⁷	70.000		
680 ⁷	80.000		
690 ⁷	90.000		
810 ⁷	100.000		

ACTUATOR COLOR ⁹	
COLOR	LEGEND
1 White	Dual (Black)
2 Black	Dual (White)
3 Red	Dual (White)
6 Yellow	Dual (Black)

AGENCY APPROVAL	
A	W/O Approval
C	UL Recognized CSA Certified
D ¹⁰	UL Recognized CSA & VDE Certified
E ¹⁰	UL Recognized CSA & TUV Certified
I	UL 1500 Ignition Protected UL Recognized CSA Certified

450 - 1 2 1 - C

TERMINAL ^{8a}	
1	10-32 THD. Stud, .625 long
2	10-32 Screw with washer and saddle clamp
3	1/4-20 THD. Stud, .675 long
4	M5 THD. Stud, 16mm long
6	M6 THD. Stud, 17mm long
7 ^{8b}	0.250 Inch Double Quick Connect

MOUNTING/BARRIERS/VOLTAGE			
	MOUNTING INSERT	BARRIERS	VOLTAGE
1	6-32 x 0.195 inches	none	<300
A	6-32 X 0.195 inches	yes	<300
C	6-32 x 0.195 inches	mandatory	≥300
2	ISO M3 x 5mm	none	<300
B	ISO M3 x 5mm	yes	<300
D	ISO M3 x 5mm	mandatory	≥300

NOTES

- Actuator Option A: Multipole units are assembled at factory with common handle tie.
- Actuator Option B: Handle location as viewed from front of panel:
2 pole - left pole; 3 pole - center pole; 4 pole - two handles at center poles; 5 pole - three handles at center poles;
6 pole - four handles at center poles.
- Handle moves to Mid-Position only upon electrical trip of circuit breaker. Actuator Code S available with Circuit Codes B,C,D,E,F and G. When Actuator Code T is specified, handle moves to Mid Position and Alarm Switch actuates only upon electrical trip of circuit breaker, available with Circuit Codes B & C only.
- Standard multipole units have all poles identical except when specifying auxiliary switch - (see Note 4 and Fig. A) and/or mixed poles (consult factory).
- 30 amps and less, select Current Rating Code 630. For 31-50 amps, select Current Rating Code 650. For 51-70 amps, select Current Rating Code 670. For 71-100amps, select Current Rating Code 810.
- Auxiliary switch available on Series Trip and Switch Only circuits. On multipole units, only one auxiliary switch is normally supplied, mounted in extreme right pole per Fig. A.
- Voltage coils not rated for continuous duty. Available only with Delay Codes 10 and 20.
- Available to 50 amp maximum and Circuit Codes B & D only.
- For other voltage or current ratings consult factory.
- Current rating Codes 660 thru 810 are available with Circuit Codes A & B only. Current ratings 60 thru 70 are available up to 4 poles maximum. Ratings 71 thru 100 are available up to 2 poles maximum, and with Frequency and Delay Codes 10 thru 14, 20 thru 24 and 30 thru 34 only.
- Terminal Codes 1 & 2 are available to 50 amps maximum. Terminal Code 3 available to 100 amps maximum and is required on all ratings greater than 50 amps.
- Terminal Code 7 available to 25 amps only.
- Standard actuator colors are black and white. DUAL = I - O /ON-OFF combination.
- Consult factory for TUV and VDE Certified versions.
- 2, 3 and 4 pole versions only. (See specifications page.)

C-Series Rocker

Ordering Scheme

PROD CODE
C

POLES
1 One
2^a Two
3^a Three

AUXILIARY SWITCH⁴
0 w/o Aux Switch
2 S.P.D.T., 0.110 Q.C. Term.
3 S.P.D.T., 0.139 Solder Lug
4 S.P.D.T., 0.110 Q.C. Term.
(Gold Contacts)
8 S.P.S.T., 0.187 Q.C. Term.



ROCKER STYLE DESCRIPTIONS			
	INDICATE "ON"	INDICATE "OFF"	SINGLE COLOR
VERTICAL STYLE	<p>CODE "C"</p>	<p>CODE "F"</p>	<p>CODE "J"</p>
HORIZONTAL STYLE	<p>CODE "D"</p>	<p>CODE "G"</p>	<p>CODE "K"</p>

FIG. A

C F 1 - B 0 - 24 -

ACTUATOR¹ VISI-ROCKER

C Indicate ON;Vertical Legend
D Indicate ON;Horizontal Legend
F Indicate OFF;Vertical Legend
G Indicate OFF;Horizontal Legend

SINGLE COLOR ROCKER

J Vertical Legend
K Horizontal Legend

PUSH-TO-RESET (VISI-ROCKER)

N Indicate OFF;Vertical Legend
O Indicate OFF;Horizontal Legend

PUSH-TO-RESET

(SINGLE COLOR ROCKER)

R Vertical Legend
U Horizontal Legend

CIRCUIT

A³ Switch Only (No Coil)
B Series Trip (Current)
C Series Trip (Voltage)
D Shunt Trip (Current)
E Shunt Trip (Voltage)
F Relay Trip (Current)
G Relay Trip (Voltage)

DUAL COIL AVAILABLE;
CONSULT FACTORY.

FREQUENCY AND DELAY

03 DC 50/60 Hz. When delay is not applicable, i.e. switch only circuit option.

10^{5a} DC Instantaneous

11 DC Ultra Short

12 DC Short

14 DC Medium

16 DC Long

20^{5a} 50/60Hz Instantaneous

21 50/60Hz Ultra Short

22 50/60Hz Short

24 50/60Hz Medium

26 50/60Hz Long

32 DC, 50/60Hz Short

34 DC, 50/60Hz Medium

36 DC, 50/60Hz Long

42^{5b} 50/60Hz Short (Hi-Inrush)

44^{5b} 50/60Hz Medium (Hi-Inrush)

46^{5b} 50/60Hz Long (Hi-Inrush)

52^{5b} DC Short, Hi-Inrush

54^{5b} DC Medium, Hi-Inrush

56^{5b} DC Long, Hi-Inrush

C-Series Rocker

6 CIRCUIT BREAKERS & FUSES

COIL RATING ⁶ CURRENT COIL	
AMPERES	
210	0.100
225	0.250
250	0.500
275	0.750
410	1.000
425	2.500
450	5.000
475	7.500
610	10.000
615	15.000
620	20.000
625	25.000
630	30.000
635	35.000
640	40.000
650	50.000
660 ⁷	60.000
670 ⁷	70.000
680 ⁷	80.000
690 ⁷	90.000
810 ⁷	100.000
VOLTAGE COIL ^{5a} RATED MIN. TRIP	
VOLTS VOLTS	
A06	6 DC 5 DC
A12	12 DC 10 DC
K20	120 AC 65 AC

ACTUATOR STYLE & COLOR VISI-ROCKER^{1, 9a, 9b}

VISI-COLOR LEGEND

1	White	Dual (Black)
3	Red	Dual (White)
4	Green	Dual (Black)

SINGLE COLOR ROCKER^{1, 9b}

ROCKER LEGEND

2	Black	Dual (White)
3	Red	Dual (White)
4	Green	Dual (White)
5	Blue	Dual (White)
6	Yellow	Dual (Black)
7	Gray	Dual (Black)
8	Orange	Dual (Black)

AGENCY APPROVAL

A	W/O Approval
C	UL Recognized CSA Certified
D	UL Recognized CSA & VDE Certified

650

-

1

3

1

-

C

TERMINAL^{8a}

1	10-32 THD. Stud, .625 long
2	10-32 Screw
3	1/4-20 THD. Stud, .675 long
4	M5 x THD. Stud, 16mm long
6	M6 x THD Stud 17mm long
7 ^{8b}	0.250 Inch Double Quick Connect

MOUNTING/BARRIERS/VOLTAGE

	INSERTS	BEZEL	BARRIER	VOLTAGE
1	6-32 X 0.195 inches	Standard	None	<300
A ^{9c}	6-32 X 0.195 inches	Rockerguard	None	<300
B ^{9c}	6-32 X 0.195 inches	Push-to-reset	None	<300
2	6-32 X 0.195 inches	Standard	Yes	<300
C ^{9c}	6-32 X 0.195 inches	Rockerguard	Yes	<300
D ^{9c}	6-32 X 0.195 inches	Push-to-reset	Yes	<300
3	6-32 X 0.195 inches	Standard	Mandatory	≥300
E ^{9c}	6-32 X 0.195 inches	Rockerguard	Mandatory	≥300
F ^{9c}	6-32 X 0.195 inches	Push-to-reset	Mandatory	≥300
4	ISO M3 x 5mm deep	Standard	None	<300
G ^{9c}	ISO M3 x 5mm deep	Rockerguard	None	<300
H ^{9c}	ISO M3 x 5mm deep	Push-to-reset	None	<300
5	ISO M3 x 5mm deep	Standard	Yes	<300
J ^{9c}	ISO M3 x 5mm deep	Rockerguard	Yes	<300
K ^{9c}	ISO M3 x 5mm deep	Push-to-reset	Yes	<300
6	ISO M3 x 5mm deep	Standard	Mandatory	≥300
L ^{9c}	ISO M3 x 5mm deep	Rockerguard	Mandatory	≥300
M ^{9c}	ISO M3 x 5mm deep	Push-to-reset	Mandatory	≥300

NOTES

- For description of Rocker styles and Legend positions, refer to Fig. B. Push-To-Reset actuators have OFF portion of rocker shrouded.
- Multipole units have one rocker per unit. Rocker location as viewed from front panel as follows: 2 pole unit - left pole; 3 pole unit - center pole. Standard multipole units have all poles identical except when specifying Auxiliary/Alarm note 4 and figure A) mixed poles. (Consult factory.)
- 30 amps and less, select current rating code 630; for 31-50 amps, select current rating code 650; 51-70 amps, select current rating code 670; 71-100 amps, select current rating code 810.
- Auxiliary switch available on Series Trip and Switch Only circuits. On multipole units, only one auxiliary switch is normally supplied, mounted in extreme right pole per figure A.
- 5a. Voltage coils not rated for continuous duty. Available only with Delay Codes 10 and 20.
- 5b. Available to 50 amp maximum and circuit codes B and D only.
6. For other Voltage and Current ratings, consult factory.
- Current Rating Codes 660 thru 810 are available with Circuit Codes A and B only. Current Ratings 60 thru 70 are available up to 3 poles maximum. Ratings 71 thru 100 are available up to 2 poles maximum, and with Frequency and Delay Codes 10 thru 14, 20 thru 24 and 30 thru 34 only.
- 8a. Terminal Codes 1, 2 and 4 are available to 50 amps maximum. Terminal Codes 3 and 6 are available to 100 amps maximum and are required on all ratings greater than 50 amps.
- 8b. Terminal Code 7 available to 25 amps max.
- 9a. Color shown is Visi and Legend Color with remainder of Rocker black.
- 9b. Dual Markings = I - O / ON-OFF combination.
- 9c. OFF legend on Push-To-Reset Bezel/Shroud is white when ordering single color rocker types. When ordering visi-rocker types the legend matches the visi color. Rockerguard available with actuator codes C thru K. Push-To-Reset available with actuator codes N, O, R, U.

C-Series UL489

Ordering Scheme

PROD CODE
C

POLES^{2a}
1 One
2^{2b} Two
3^{2b, 2c} Three

AUXILIARY SWITCH³
0 w/o Aux Switch
2 S.P.D.T., 0.110 Q.C. Term.
3 S.P.D.T., 0.139 Solder Lug
4 S.P.D.T., 0.110 Q.C. Term.
(Gold Contacts)
8 S.P.S.T., 0.187 Q.C. Term.



C A 1 - B 0 - 24 -

ACTUATOR HANDLE, ONE PER POLE

A^{1a} Handle
S^{1b} Mid-Trip
T^{1b} Mid-Trip and Alarm Switch

VISI-ROCKER

C^{1c} Indicate ON, Vertical Legend
D^{1c} Indicate ON, Horizontal Legend
F^{1c} Indicate OFF, Vertical Legend
G^{1c} Indicate OFF, Horizontal Legend

SINGLE COLOR ROCKER

J^{1c} Vertical Legend
K^{1c} Horizontal Legend

CIRCUIT
B Series Trip
(Current)

FREQUENCY AND DELAY

11 DC Ultra Short
12 DC Short
14 DC Medium
16 DC Long
21 50/60Hz Ultra Short
22 50/60Hz Short
24 50/60Hz Medium
26 50/60Hz Long
42⁴ 50/60Hz Short (Hi-Inrush)
44⁴ 50/60Hz Medium (Hi-Inrush)
46⁴ 50/60Hz Long (Hi-Inrush)

NOTES

- 1a. Actuator Option A: Multipole units are assembled at factory with common handle tie.
- 1b. Handle moves to Mid-Position only upon electrical trip of circuit breaker. When Actuator Code S is specified. When Actuator Code T is specified, handle moves to Mid-Position and Alarm Switch actuates only upon electrical trip of circuit breaker.
- 1c. For description of Rocker styles and Legend positions, refer to Fig. A. Rocker actuated circuit breakers are available as single pole only.
- 2a. Rocker Actuated circuit breakers are available as a single pole only.
- 2b. 2 and 3 pole circuit breakers required for 120/240 VAC (maximum application rating code C.) applications, have all poles identical except when specifying Auxiliary/Alarm switch which is normally supplied in extreme right pole per Fig. B. These units are available with one Handle per pole only & terminal Barrier is mandatory.
- 2c. Third pole is for 120/240 VAC applications requiring Neutral Disconnect. The third pole has the same construction as poles 1 & 2.
3. Auxiliary/Alarm switch with independent Circuit i.e. separate from Breaker Circuit, only available with Circuit Breakers rated 50 amps maximum at 80 VDC, 125 VDC and 120 VAC. Auxiliary/Alarm Switch with Dependent Circuit, i.e. same as Breaker Circuit, is supplied from factory with Common Terminal of Auxiliary/Alarm Switch connected to Line Terminal on 120/240 and 240 VAC Ratings. Circuit Breakers rated 120 VAC 50 AMPS maximum, can be supplied with Auxiliary/Alarm Switch Common Terminal connected to Breaker Line Terminal. Consult factory for special Catalog Number.
4. Available to 50 amp maximum with circuit codes B and D only.
- 5a. Terminal Codes 1 & 2 are available to 50 amps maximum. Terminal Code 3 available to 100 amps maximum and is required on all ratings greater than 50 amps.
- 5b. Color shown is Visi and Legend Color with remainder of Rocker black.
- 5c. Dual Markings = I - O / ON-OFF combination.
6. For other current ratings, consult factory.
7. Refer to Table A for agency approved voltage and current ratings.

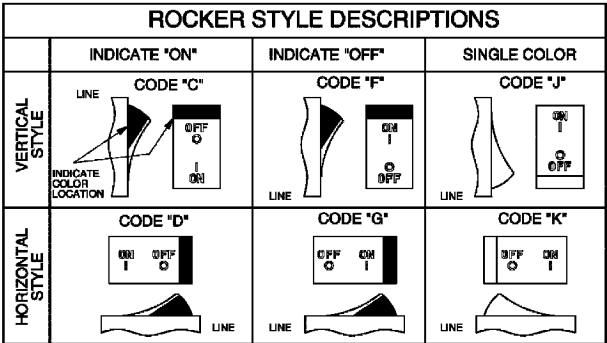
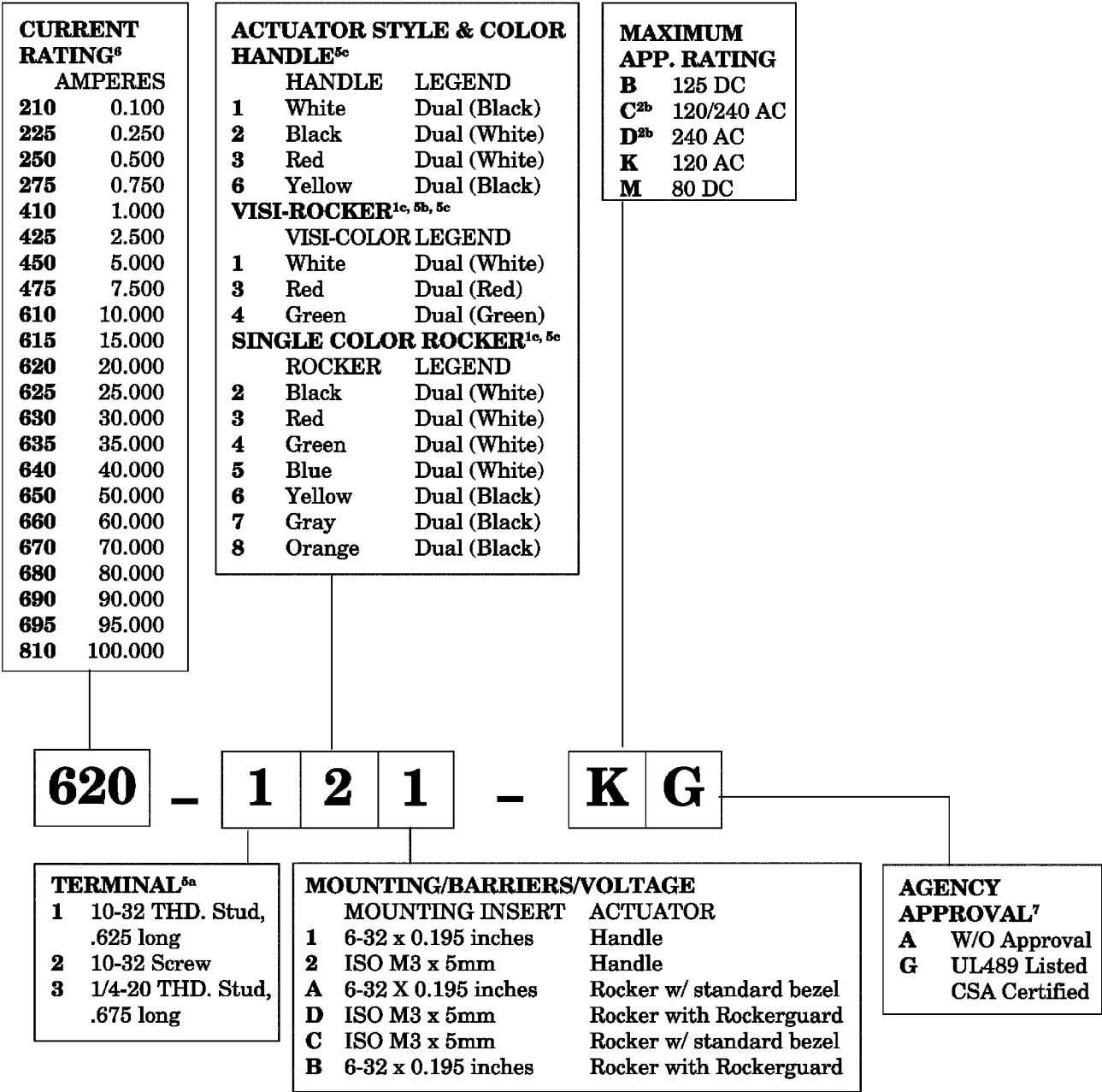


FIG. A

Ordering Scheme



E-Series - Branch Circuit Breaker

PROD CODE¹
E

POLES¹
1 One
2 Two
3 Three
4 Four
5 Five
6 Six

AUXILIARY SWITCH³
0 w/o Aux Switch
2 0.110 Q.C. Term.
3 Solder Lug
4 0.110 Q.C. Term.
w/ Gold Contacts

E

A

2

-

B

0

-

24

-

ACTUATOR
A Handle, one per pole

CIRCUIT
B Series Trip

FREQUENCY AND DELAY
12 DC Short
14 DC Medium
16 DC Long
22 50/60Hz Short
24 50/60Hz Medium
26 50/60Hz Long

NOTES

1. E-Series circuit breakers on this page are LISTED under UL Standard #489 (General and Special Purpose) and are Certified under CSA Standard #C22.2 No. 5.
2. Standard multi-pole units have all poles identical except when specifying auxiliary switch - (see Note 3 and Fig. A).
3. On multi-pole units, only one auxiliary switch is normally supplied mounted in the extreme right pole per Fig. A. Back mounted units require special mounting provisions when auxiliary switch is specified.
4. A terminal barrier is supplied between poles on multi-pole units with 10-32 stud (Terminal Code 1) and 1/4-20 stud (Terminal Code 2) per UL requirement.
- 5a. Box Wire Connector will accept #14 through 0 AWG. copper wire or #12 through 0 AWG. aluminum wire.
- 5b. Box Wire Connector with Pressure Plate for stranded wire, consult factory for details.
6. Standard handle colors are white and black with ON-OFF & dual; I-O/ON-OFF legends.
7. Back Mounted breakers can also be front mounted by utilizing the proper front panel mounting inserts normally supplied. However, terminal connections must be made prior to mounting.
8. Line Terminals must be same polarity.

E-Series - Branch Circuit Breaker

6

CIRCUIT BREAKERS & FUSES

COIL RATING CURRENT COIL AMPERES	
210	0.100
225	0.250
250	0.500
410	1.000
425	2.500
450	5.000
475	7.500
610	10.000
615	15.000
620	20.000
625	25.000
630	30.000
650	50.000
660	60.000
670	70.000
810	100.000

ACTUATOR COLOR COLOR LEGEND		
B ⁶	White	On-Off (Black)
1 ⁶	White	Dual (Black)
D ⁶	Black	On-Off (White)
2 ⁶	Black	Dual (White)
G	Red	On-Off (White)
3	Red	Dual (White)
N	Yellow	On-Off (Black)
6	Yellow	Dual (Black)

MAXIMUM APPLICATION RATING	
VOLTAGE	CURRENT
B	125 VDC 100 Amps
C	120/240 VAC 100 Amps
D	240 VAC 100 Amps

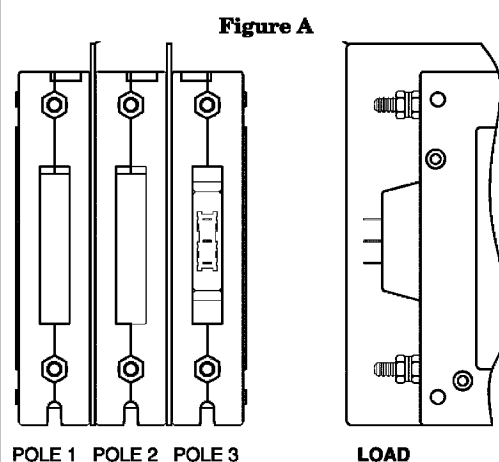


Figure A

MULTI-POLE IDENTIFICATION SCHEME

AGENCY APPROVAL	
A	W/O Approval
C	UL 489 LISTED and CSA Certified (Branch Circuit Breaker)

450

-

1

2

A

-

C

C

TERMINAL		MAX. RATING
BACK CONNECTED (Front Mounted Only)		
1 ⁴	10-32 studs (all terminals)	50A
2 ⁴	1/4-20 studs (all terminals)	100A
FRONT CONNECTED (Back Mounted Only)		
3 ^{5a}	Box Wire Connector (line & load)	100A
C ^{5b}	Box Wire Connector w/ pressure plate (line & load)	100A
4	10-32 screw (line & load)	50A
5 ⁸	10-32 "Bus-type" screw (line), 10-32 screw (load)	50A
6 ^{5a,8}	10-32 "Bus-type" screw (line), Box Wire Connector (load)	100A
F ^{5b,8}	10-32 "Bus-type" screw (line), Box Wire Connector w/ pressure plate (load)	100A
7	1/4-20 screw (line & load)	100A
8 ⁸	1/4-20 "Bus-type" screw (line), 1/4-20 screw (load)	100A
9 ^{5a,8}	1/4-20 "Bus-type" screw (line), Box Wire Connector (load)	100A
J ^{5b,8}	1/4-20 "Bus-type" screw (line), Box Wire Connector w/ pressure plate (load)	100A

MOUNTING	
FRONT (Back Connected Only)	
Mounting inserts	
A	6-32
B	ISO M3
BACK (Front Connected Only) ⁷	
	Back mounting foot type
C	Short
D	Short
E	Long
F	Long
	Front mounting insert (for opt. use)
	6-32
	ISO M3
	6-32
	ISO M3

E-Series – Supp. Protectors/Manual Motor Controllers

Ordering Scheme



PROD CODE¹
E

POLES²
1 One
2 Two
3 Three
4 Four
5 Five
6 Six

AUXILIARY SWITCH⁴
0 w/o Aux Switch
2 0.110 Q.C. Term.
3 Solder Lug
4 0.110 Q.C. Term.
w/ Gold Contacts

E A 2 - B 0 - 24 -

ACTUATOR
A Handle, one per pole

CIRCUIT^{5b}
A^{3a} Switch Only (No Coil)
B Series Trip (Current)
D Shunt Trip (Current)

FREQUENCY AND DELAY
03 DC, 50/60Hz When delay is not applicable, i.e. Switch Only circuit option.
10 DC Instantaneous
12 DC Short
14 DC Medium
16 DC Long
20 50/60Hz Instantaneous
22 50/60Hz Short
24 50/60Hz Medium
26 50/60Hz Long

NOTES

1. E-Series circuit breakers on this page are UL Recognized under the Component Recognition Program as Supplementary Protectors, (UL Standard #1077) and Manual Motor Controllers. (UL Standard #508) and are also Certified to CSA Standard C22.2 No. 235 as Supplementary Protectors.
2. Standard multi-pole units have all poles identical except when specifying auxiliary switch - (see Note 4 and Figure A). For mixed ratings, consult factory.
- 3a. Switch Only construction: 30 amps or less select Current Rating Code 630; 31-70 amps, select Current Rating code 670; 71-100 amps, select Current Rating Code 810.
- 3b. Switch Only and Series Trip construction available with either front or back connected terminals. Shunt construction available with back connected terminals, (Terminal Codes 1 & 2) only.
4. Auxiliary Switch available on Switch Only and Series Trip units. On multi-pole units, only one auxiliary switch is normally supplied mounted in the extreme right pole per Figure A. Back mounted units require special mounting provisions when auxiliary switch is specified.
5. A terminal barrier is supplied between poles on multi-pole units with 10-32 stud (Terminal Code 1) and 1/4-20 stud (Terminal Code 2) per UL requirement.
- 6a. Box Wire Connector will accept #14 through 0 AWG. copper wire or #12 through 0 AWG. aluminum wire.
- 6b. Box Wire Connector with Pressure Plate for stranded wire, consult factory for details.
7. Standard handle colors are white and black with I-O, ON-OFF and DUAL ON-OFF/I-O legends.
8. Back Mounted breakers can also be front mounted by utilizing the proper front panel mounting inserts normally supplied. However, terminal connections must be made prior to mounting.
9. 480V and 600V ratings require 3 or 4 pole break 3Ø and 2 pole break 1Ø.
10. Line Terminals must be same polarity, rated 300V max.

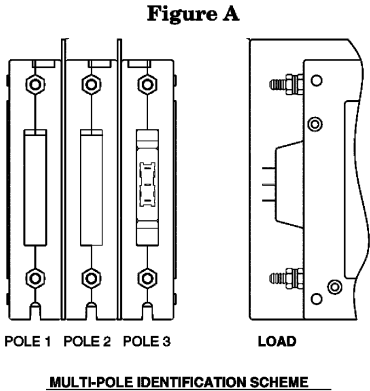
E-Series – Supp. Protectors/Manual Motor Controllers

6
CIRCUIT
BREAKERS
&
FUSES

COIL RATING	
CURRENT COIL	AMPERES
210	0.100
225	0.250
250	0.500
410	1.000
425	2.500
450	5.000
475	7.500
610	10.000
615	15.000
620	20.000
625	25.000
630	30.000
650	50.000
660	60.000
670	70.000
810	100.000

ACTUATOR COLOR		
	COLOR	LEGEND
A ⁷	White	I-O (Black)
B ⁷	White	On-Off (Black)
1 ⁷	White	Dual (Black)
C ⁷	Black	I-O (White)
D ⁷	Black	On-Off (White)
2 ⁷	Black	Dual (White)
F	Red	I-O (White)
G	Red	On-Off (White)
3	Red	Dual (White)
M	Yellow	I-O (Black)
N	Yellow	On-Off (Black)
6	Yellow	Dual (Black)

MAXIMUM APPLICATION RATING		
	VOLTAGE	CURRENT
B	125 VDC	100 Amps
C	120/240 VAC	100 Amps
D	240 VAC	100 Amps
E ⁹	277/480 VAC	100 Amps
F	277 VAC	100 Amps
G ⁹	600 VAC	100 Amps
H ⁹	480 VAC	100 Amps
U	125 VDC/277 VAC	100 Amps
V ⁹	125 VDC/600 VAC	100 Amps



450 - 1 2 A - C B

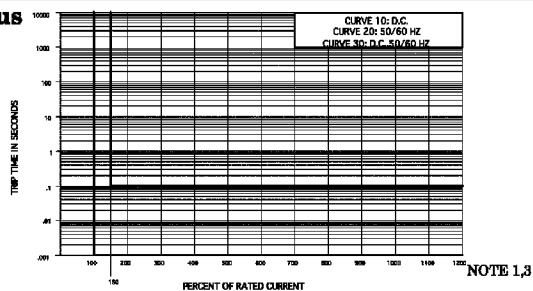
TERMINAL		MAX. RATING
BACK CONNECTED (Front Mounted Only)		
1 ⁵	10-32 studs (all terminals)	50A
2 ⁵	1/4-20 studs (all terminals)	100A
FRONT CONNECTED (Back Mounted Only)		
3 ^{6a}	Box Wire Connector (line & load)	100A
C ^{6b}	Box Wire Connector w/ pressure plate (line & load)	100A
4	10-32 screw (line & load)	50A
5 ¹⁰	10-32 "Bus-type" screw (line), 10-32 screw (load)	50A
6 ^{6a,10}	10-32 "Bus-type" screw (line), Box Wire Connector (load)	100A
F ^{6b,10}	10-32 "Bus-type" screw (line), Box Wire Connector w/ pressure plate (load)	100A
7	1/4-20 screw (line & load)	100A
8 ¹⁰	1/4-20 "Bus-type" screw (line), 1/4-20 screw (load)	100A
9 ^{6a,10}	1/4-20 "Bus-type" screw (line), Box Wire Connector (load)	100A
J ^{6b,10}	1/4-20 "Bus-type" screw (line), Box Wire Connector w/ pressure plate (load)	100A

MOUNTING	
FRONT (Back Connected Only)	
Mounting inserts	
A	6-32
B	ISO M3
BACK (Front Connected Only) ⁸	
Back mounting foot type	
C	Short
D	Short
E	Long
F	Long
Front mounting insert (for opt. use)	
	6-32
	ISO M3
	6-32
	ISO 32

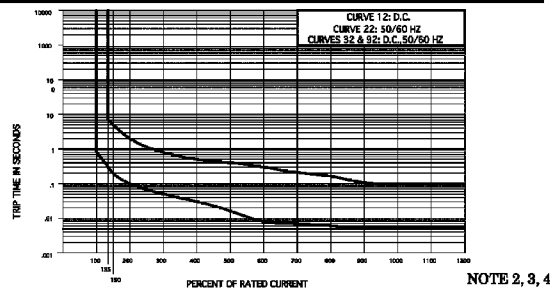
AGENCY APPROVAL	
A	W/O Approval
B	UL 1077 RECOGNIZED & CSA CERTIFIED (Supplementary Protector); UL 508 RECOGNIZED (Manual Motor Controller)

Time Delay Values (M and Q Series) Dual Rated AC/DC

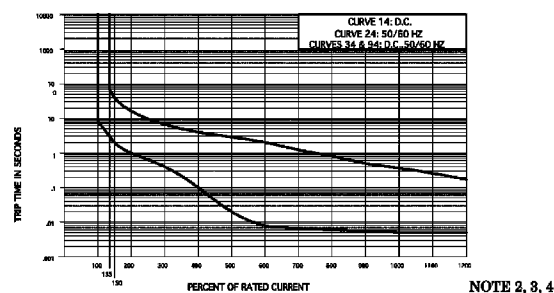
Instantaneous



Short



Medium



		PERCENT OF RATED CURRENT								
TRIP TIME (SECONDS)	DELAY	100%	135%	150%	200%	400%	600%	800%	1000%	1200%
	10, 20 & 30	NO TRIP	MAY TRIP	.100 MAX.	.100 MAX.	.100 MAX.	.100 MAX.	.100 MAX.	.100 MAX.	.100 MAX.
	12, 22, 32 & 92	NO TRIP	.300 - 7.00	.200 - 5.00	.100 - 2.00	.030 - .500	.008 - .300	.006 - .150	.005 - .100	.005 - .100
	14, 24, 34 & 94	NO TRIP	3.00 - 70.0	2.00 - 40.0	1.00 - 15.0	.100 - 4.00	.008 - 2.00	.006 - .800	.005 - .350	.005 - .160

NOTES

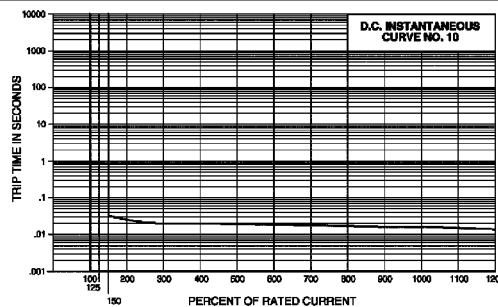
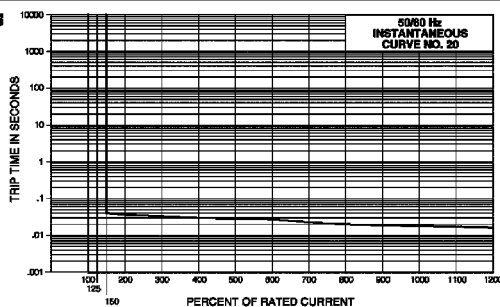
- 1 Breakers to hold 100% and must trip at 150% of rated current and greater within the time limit shown in this curve.
- 2 Breakers to hold 100% and must trip at 135% of rated current and greater within the time limits shown in this curve.
- 3 Curve data shown represents breaker response at ambient temperature of 77°F (25°C) with no preloading. Breakers are mounted in standard wall mount position.
- 4 The minimum inrush pulse tolerance handling capacity on the above standard delays is 12 times rated current based on a 60 Hz, 1/2 cycle 8 ms pulse for delay curves 22, 24, 32 and 34 and is 18 times rated current up to 20 amps; 14 times rated current up to 25 amps based on a 60Hz, 1/2 cycle 8 ms pulse for delay curves 92 and 94.

Time Delay Values (A, B, C & D-Series)

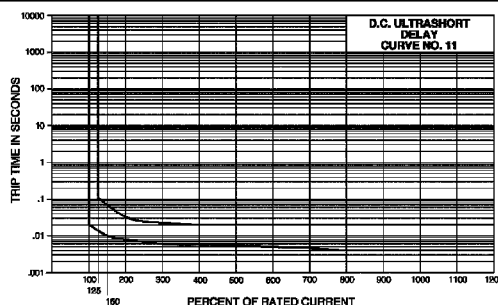
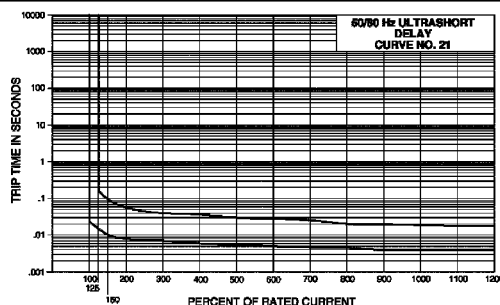
AC

DC

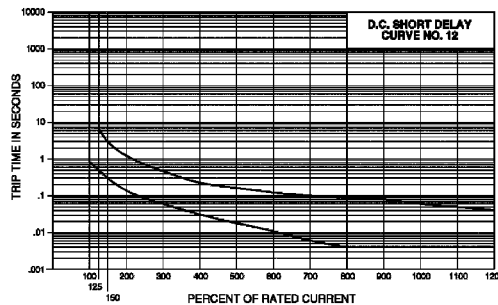
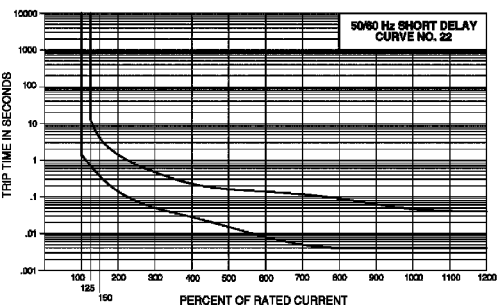
Instantaneous



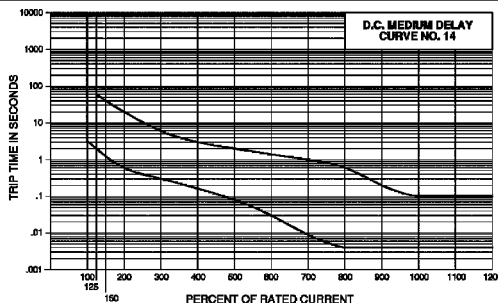
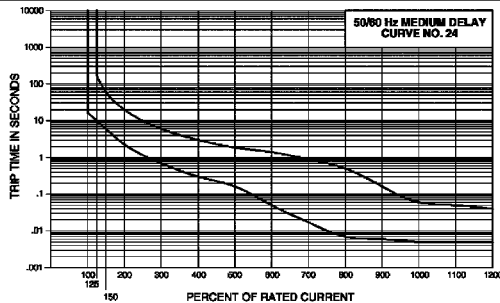
Ultrasort



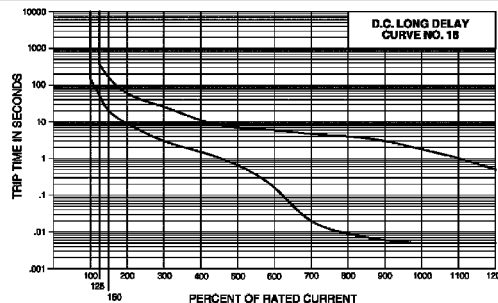
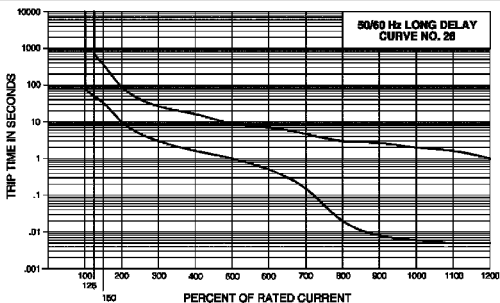
Short



Medium



Long



NOTES

UL489 C-Series Breakers available with Delay Curves 11, 12, 14, 16, 21, 22, 24, 26, 42, 44, 46

Delay Curves 11,12,14,16,21,22,24,26,42,44,46: Breakers to hold 100% and must trip at 125% of rated current and greater within the time limit shown in this curve.

Delay Curves 32,34,36: Breakers to hold 100% and must trip at 135% of rated current and greater within the time limit shown in this curve.

Delay Curves 10,20: Breakers to hold 100% and must trip at 150% of rated current and greater within the time limit shown in this curve.

All Curves: Curve data shown represents breaker response at ambient temperature of 77°F (25°C) with no preloading. Breakers are mounted in standard wall-mount position.

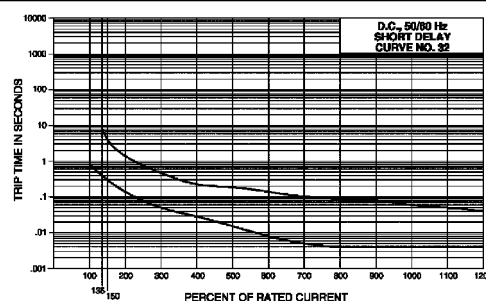
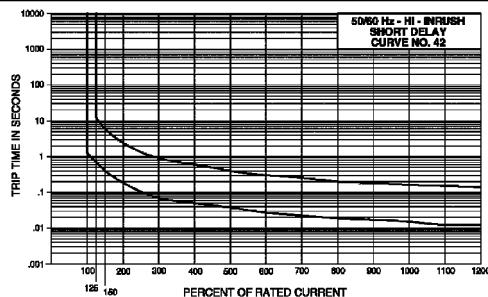
On 50 amp and less current ratings, the minimum inrush pulse tolerance handling capability is 12 times the rated current on standard delays and 25 times the rated current on high inrush delays. These values are based on a 60 Hz 1/2 cycle, 8 ms pulse. High inrush delays should be specified for applications with high initial surge currents of short duration such as switching power supplies, highly capacitive and transformer loads.

Time Delay Values (A, B, C & D-Series)

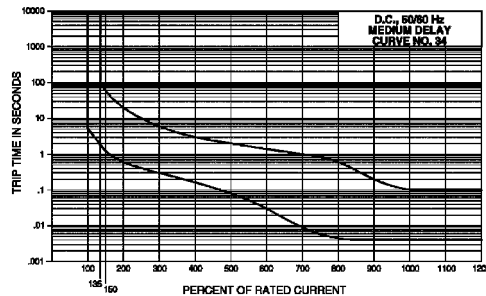
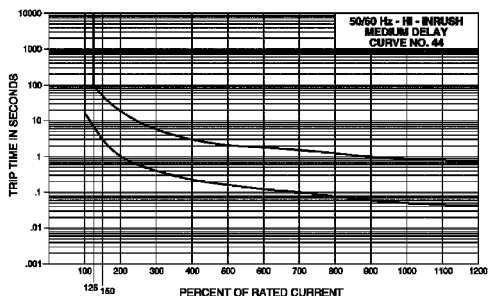
HI-INRUSH AC Delay Curves

Dual Rated AC/DC Delay Curves

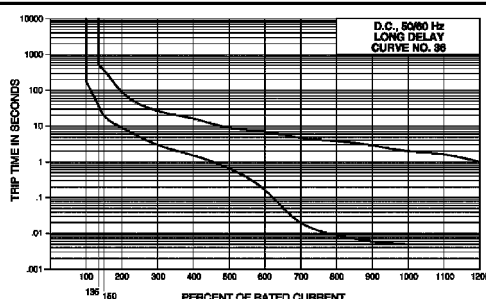
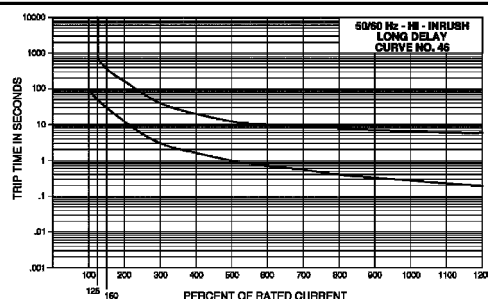
Short



Medium



Long



PERCENT OF RATED CURRENT											
TRIP TIME (SECONDS)	DELAY	100%	125%	135%	150%	200%	400%	600%	800%	1000%	1200%
	10	NO TRIP	MAY TRIP	---	.032 MAX	.024 MAX	.020 MAX	.018 MAX	.016 MAX	.015 MAX	.013 MAX
	11	NO TRIP	.013 - .125	---	.010 - .070	.008 - .032	.006 - .020	.005 - .020	.004 - .020	.004 - .020	.004 - .020
	12	NO TRIP	.500 - 6.50	---	.300 - 3.00	.130 - 1.20	.031 - .220	.011 - .120	.004 - .090	.004 - .060	.004 - .040
	14	NO TRIP	2.00 - 60.0	---	1.20 - 40.0	.600 - 20.0	.150 - 3.00	.030 - 1.30	.004 - .600	.004 - .100	.004 - .100
	16	NO TRIP	45.0 - 345	---	20.0 - 150	9.00 - 60.0	1.40 - 11.4	.150 - 5.80	.009 - 3.70	.005 - 1.70	.005 - .500
	20	NO TRIP	MAY TRIP	---	.040 MAX	.035 MAX	.030 MAX	.025 MAX	.020 MAX	.017 MAX	.015 MAX
	21	NO TRIP	.014 - .150	---	.011 - .095	.008 - .055	.006 - .035	.005 - .027	.005 - .021	.004 - .018	.004 - .017
	22	NO TRIP	.700 - 12.0	---	.350 - 4.00	.130 - 1.30	.027 - .220	.008 - .130	.004 - .090	.004 - .045	.004 - .040
	24	NO TRIP	10.0 - 160	---	6.00 - 60.0	2.20 - 20.0	.300 - 3.00	.050 - 1.30	.007 - .500	.005 - .060	.005 - .040
	26	NO TRIP	50.0 - 700	---	32.0 - 350	10.0 - 90.0	1.50 - 15.0	.500 - 7.00	.020 - 3.00	.006 - 2.00	.005 - 1.00
	32	NO TRIP	MAY TRIP	400 - 8.00	.300 - 4.00	.130 - 1.30	.027 - .220	.008 - .130	.004 - .090	.004 - .060	.004 - .040
	34	NO TRIP	MAY TRIP	1.80 - 100	1.20 - 60.0	.600 - 20.0	.150 - 3.00	.030 - 1.30	.004 - .600	.004 - .110	.004 - .100
	36	NO TRIP	MAY TRIP	35.0 - 520	20.0 - 350	9.00 - 90.0	1.40 - 15.0	.150 - 7.00	.009 - 3.70	.005 - 2.00	.004 - 1.00
	42	NO TRIP	.700 - 12.0	---	.400 - 6.00	.180 - 2.30	.050 - .600	.026 - .300	.018 - .200	.014 - .150	.012 - .130
	44	NO TRIP	7.00 - 100	---	3.00 - 50.0	1.10 - 18.0	.220 - 3.00	.120 - 1.70	.075 - 1.20	.050 - .850	.042 - .720
	46	NO TRIP	50.0 - 700	---	31.0 - 350	12.0 - 150	1.50 - 20.0	.700 - 10.0	.404 - 7.90	.260 - 6.50	.198 - 5.80
	52	NO TRIP	.500 - 6.50	---	.340 - 4.50	.180 - 2.30	.051 - .600	.030 - .320	.018 - .220	.014 - .200	.012 - .130
	54	NO TRIP	1.50 - 50.0	---	.750 - 35.0	.350 - 18.0	.110 - 3.00	.070 - 1.70	.045 - 1.40	.039 - 1.30	.035 - 1.30
	56	NO TRIP	45.0 - 345	---	19.0 - 170	8.50 - 100	1.24 - 15.0	.410 - 9.00	.256 - 8.00	.210 - 5.50	.198 - 2.90

NOTES

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Delay Curves 32,34,36: Breakers to hold 100% and must trip at 135% of rated current and greater within the time limit shown in this curve.

Delay Curves 10,20: Breakers to hold 100% and must trip at 150% of rated current and greater within the time limit shown in this curve.

All Curves: Curve data shown represents breaker response at ambient temperature of 77°F (25°C) with no preloading. Breakers are mounted in standard wall-mount position.

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