

C-FRAME SERIES Circuit Breakers

FEATURES

- Hydraulic-Magnetic Technology
- 100% Rating Capability Independent of Ambient Temperature
- Up to Six Poles
- CUL, CUR, VDE and CE Approved
- Optional Trip Alarm and Auxiliary Switch
- Wide Range of Circuits, Mountings, Terminations and Time Delays Available
- Mid Trip Indication
- Two Colour Handle Indication (Two Tone Flush Rocker)
- Motor Starting Applications to 30A



APPLICATIONS

- Telecoms DC Power Distribution
- UPS Equipment
- Mobile Power-Generation Equipment
- Power Conditioning Equipment
- Alternative Energy Equipment
- Lighting Control
- Marine Protection

TECHNICAL DATA

Circuit	Circuit Breaker	Circuit Breaker	Circuit Breaker	Circuit Breaker
Approvals	CUL ¹	UL489A	CUR ² / VDE (EN60934)	CUR ² / VDE (EN60934)
Number of Poles	1,2	1,2	1,2	1 – 6
Operating Voltage	120/240V AC	80V DC	80V DC	250V AC
Minimum Current Rating	0.05	0.05	0.05	0.05
Maximum Current Rating	20	50	50	50
Interrupting Capacity	5kA ³	5kA ³	CUR 7.5kA / VDE-4kA	5kA ³

Circuit	Circuit Breaker	Circuit Breaker	Circuit Breaker	Switch
Approvals	CUR ²	CUR ² and UL1500	CUR ² and UL1500	CUR ⁴
Number of Poles	1	1	1	1 – 3 ⁵
Operating Voltage	277V AC	65V DC	120V AC	80V DC / 277V AC
Minimum Current Rating	0.05	0.05	0.05	0.05
Maximum Current Rating	50	30	50	50
Interrupting Capacity	5kA ³	1.5kA	1.5kA	5kA ³
Operating Temperature Range	-40°C TO +85°C			

Note ¹: UL489 and CSA 22.2 No 5-02.

Note ²: UL1077 and CSA 22.2 No 235-M89.

Note ³: 5kA with fuse back-up, 2kA without fuse backup.

Note ⁴: UL508 and CSA 222 No 14-M9.

Note ⁵: 80V DC 1,2 Pole; 240V AC 1 – 3 Pole; 277V AC 1 Pole.



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TECHNICAL DATA

Code	Description		Comments				
C	C-Frame						
Group 1: Type							
Code	Description		Comments				
A	C-Frame CR		UL Recognized VDE (60934) approvals only				
B	C-Frame Mark IV						
G	C-Frame Mark IV UL 1500		UL Recognized approvals only				
Group 2: Mounting							
Code	Description		Comments				
3	Snap-in mount edges beveled		See figure 1.1				
B	Snap-in mount edges flush		See figure 1.2				
2	Front mount round aperture		See figure 1.3				
C	Front mount round aperture, dome		See figure 1.4, required for UL listed products, Mark IV only				
S	Front mount rectangular aperture flush rocker handle type		See figure 1.5, available on C-Frame Mark IV only				
P	PCB mount		See figure 1.6, with PCB mount terminals only				
Z	Special specify						
Group 3: Handle or Pole Blank (Reduced Handle)							
Code	Description		Comments				
A	Standard handle		See figure 2.1; for mountings 3, B, 2, C				
B	Short handle		See figure 2.2; for mountings 3, B, 2, CR only				
C	Cut off handle		See figure 2.3; for mountings 3, B, 2, C Only 1 handle per Unit				
H	Flush rocker handle		See figure 2.4; for mounting S, Mark IV Only 1 handle per Unit				
M	Two tone flush rocker handle		See figure 2.5; for mounting S, Mark IV Only 1 handle per Unit				
Y	No handle, Blank front plate		For reduced handle version, on pole(s) without handle				
2	Standard handle, mid trip		See figure 2.6; for mountings 3, B, 2, C, Mark IV only				
5	Flush rocker handle, mid trip pull to reset		See figure 2.7; for mounting S, Mark IV Only 1 handle per Unit				
6	Two tone flush rocker handle, mid trip pull to reset		For mounting S; Mark IV Only 1 handle per Unit				
Z	Special specify						
Group 4: Main Terminal Description							
Code	Description		Comments				
AX	M5 or 10-32 stud		See figure 3.1; 50A max. Mark IV only				
CX	Rear quick connect terminal (0.8mm X 6.35mm)		See figure 3.2; 25A max.				
21	Screw terminal, Bus connected (M4 or 8-32)		See figure 3.3; 40A max.				
22	Screw terminal, Bus connected (M5 or 10-32)		See figure 3.3; 50A max.				
31	Screw terminal, Upturned ears (M4 or 8-32)		See figure 3.4; 40A max.				
32	Screw terminal, Upturned ears (M5 or 10-32)		See figure 3.4; 50A max.				
41	30° Bent screw terminal, Bus connected (M4 or 8-32)		See figure 3.5; 40A max.				
42	30° Bent screw terminal, Bus connected (M5 or 10-32)		See figure 3.5; 50A max.				
51	30° Bent screw terminal, Upturned ears (M4 or 8-32)		See figure 3.6; 40A max.				
52	30° Bent screw terminal, Upturned ears (M5 or 10-32)		See figure 3.6; 50A max.				
61	Marine screw terminal (M4 or 8-32)		See figure 3.7; 40A max.				
62	Marine screw terminal (M5 or 10-32)		See figure 3.7; 50A max.				
4X	M5 flush rear screw terminal		See figure 3.8; 50A max.; Mark IV only				
PX	PCB terminal		See figure 1.6 50A max.; CR and Mark IV are different				
4P	Plug-in terminal ø3.91mm x 19.05mm)		See figure 3.9; 50A max.; Mark IV only				
ZZ	Special specify						
Group 5: Number of Poles							
Code	Description	Code	Description	Note			
1	1 pole metric	A	1 pole imperial	CR four pole max.			
2	2 pole metric	B	2 pole imperial				
3	3 pole metric	C	3 pole imperial				
4	4 pole metric	D	4 pole imperial				
5	5 pole metric	E	5 pole imperial				
6	6 pole metric	F	6 pole imperial				
Group 6: Rated Voltage and Frequency							
Code	Description		Comments				
J	240V 50/60Hz		Common bus at 240V				
K	277V 50/60Hz		Common bus at 277V				
N	80V DC		Mark IV only				
E	65V DC						
S	120/240V 50/60Hz		3 wire centre tap supply, 120V per phase, Mark IV only				
Q	240/415V 50/60Hz		3 Phase multi wire system, Mark IV only				
R	277/480V Hz		3 Phase multi wire system				
M	80V DC / 240V 50/60z		AC/DC version only with AC and DC curves, Mark IV only				
L	80V DC / 277V 50/60Hz		AC/DC version only with AC and DC curves, Mark IV only				
Z	Special specify						
Group 7: Time Delay (For details of time delay refer to the application guide or web site)							
Code	Description	System	Pulse Tolerance	Code	Description	System	Pulse Tolerance
AS	Long delay	AC or DC	8 x In	CE	CH & inertia wheel	AC	35 x In
AI	AS & inertia wheel	AC or DC	20 x In	US	Ultra short time delay	AC or DC	None
AH	Long delay, high inrush	AC	20 x In	OP	Instantaneous trip	AC or DC	None
AE	AH & inertia wheel	AC	35 x In	AD	Long delay, Dual rated	AC and DC	8 x In
BS	Medium delay	AC or DC	8 x In	BD	Medium delay, Dual rated	AC and DC	8 x In
BI	BS & inertia wheel	AC or DC	20 x In	CD	Short delay, Dual rated	AC and DC	8 x In
BH	Medium delay, high inrush	AC	20 x In	AW	AD & inertia wheel, Dual rated	AC and DC	20 x In
BE	BH & inertia wheel	AC	35 x In	BW	BD & inertia wheel, Dual rated	AC and DC	20 x In
CS	Short delay	AC or DC	6 x In	CW	CD & inertia wheel, Dual rated	AC and DC	15 x In
CI	CS & inertia wheel	AC or DC	15 x In	OX	Switch		
CH	Short delay, high inrush	AC	15 x In	ZZ	Special specify		
H3	Short delay	AC or DC	6 x In				
Group 8: Main Circuit Current (Example only, any ampere rating possible)							
Code	Description		Comments				
050M	50mA						
0100	1A						
1000	10A						
1500	15A						
5000	50A						
XXXX	Not applicable		No current, for series voltage trip poles				
Group 9: Circuit Configuration							
Code	Description		Comments				
AX	Switch						
BX	Series trip						
CX	Relay trip Current sensing, centre terminal construction		30A max for the sensing coil; total current 50A max				
DX	Relay trip Voltage sensing, centre terminal construction						
EX	Shunt trip current sensing, 3rd terminal close to load side		Total load 50A maximum				
FX	Shunt trip voltage sensing, 3rd terminal close to load side						
GX	Dual control shunt trip construction, 3rd terminal close to load side		Voltage coil normally at line voltage; No AH, BH, CH, AE, BE, CE				
HX	Dual control - relay trip construction (4 terminal)		No AH, BH, CH, AE, BE, CE				
JX	Switch with auxiliary switch		Requires Auxiliary switch				
KX	Series trip, with auxiliary switch		Requires Auxiliary switch				
LX	Series trip, with trip-alarma		Trip alarm requires mid trip handle and Auxiliary switch				
ZZ	Special specify						

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Group 10: Auxiliary and Alarm Switches	Code	Description		Comments	
	A	One change over gold tips, equally spaced terminals		0.02 to 0.1A and 30V max.	
	B	One change over silver plated tips, equally spaced terminals		Standard	
	X	Not applicable		No microswitch - Flat base plate	
	Z	Special specify			
Group 11: Dual control/ Relay trip Voltage and Current coil ratings	Code	Description	Code	Description	Comments
	A4	110-125V AC 50/60Hz	C1	20mA	
	A5	220-240V AC 50/60Hz	C2	100mA	
	B0	12V DC	C3	1A	
	B1	24V DC	XX	Not applicable	
	B2	48V DC	ZZ	Special specify	
	B3	80V DC			
Group 12: Terminals for Shunt, Relay and Dual control construction (CR only code X)	Code	Description		Comments	
	A	M4/8-32 screw terminal		Figure 12.1; 40A max.	
	B	M5/10-32 screw terminal		Figure 12.1; 50A max.	
	C	Quick connect terminal		Figure 12.3; 25A max.	
	X	Not applicable		Only option for CR	
Group 13: Voltage for Illuminated Rocker	Code	Description		Note	
	X	Not applicable			
Group 14: Terminal for Illuminated Rocker	Code	Description			
	X	Not applicable			
Group 15: Handle colour	Code	Description		Note	
		For toggle handle type			
	G	Green with white marking		The coding is dependent on the type of handle. For all handles excluding the flush rocker and two tone flush rocker handles, the colour code describes the colour of the handle. For the flush rocker handle the colour code describes the colour of the on and off actuation buttons by a single code. The two tone handle, the colour code describes the indication colour. The face colour is black and the indicator indicates the off or tripped position (see figure 2.6). After selecting the appropriate colour code select the marking code, the marking colour of the two tone handle is equivalent to the indicator colour. After selecting the appropriate marking the orientation of print may be specified. For the toggle handle types only codes V and H are applicable (see figure 17.1). If the pole has no handle because of it being a reduced handle version use code XXX.	
	W	White with black marking			
	B	Black with white marking			
	4	Blue with white marking			
	Y	Yellow with black marking			
	R	Red with white marking			
		For flush rocker handle			
	W	White (On) / white (Off) black marking			
	B	Black (On) / black (Off) white marking			
	G	Green (On) / red (Off) white marking			
		For two tone rocker handle			
W	Black face / white indicator + marking				
R	Black face / red indicator + marking				
G	Black face / green indicator + marking				
X	No handle				
Z	Special specify				
Group 16: Handle Marking	Code	Description			
	A	No marking			
	B	I - 0			
	C	ON - OFF			
	D	I - 0 and ON - OFF			
	E	Ampere rating			
	F	I - 0 and ampere rating			
	G	ON-OFF and ampere rating			
	H	I-0 and ON-OFF and ampere rating			
	X	No Handle			
	Z	Special specify			
	Group 17: Handle Orientation	Code	Description		Comments
V		Vertical		See figure 17.1	
H		Horizontal		See figure 17.1	
1		Vertical 2		See figure 17.1	
2		Horizontal 2		See figure 17.1	
X		No handle			
Z		Special specify			
Group 18: Front plate colour and marking options	Code	Description		Comments	
	B	Black front plate no marking			
	2	Black front plate no marking, with test button for mechanical trip		Test button is standard on rocker handle version, on the switch version the button is nonfunctioning and black in colour	
	Z	Special specify			
Group 19: Inter-phase barrier and terminal cover	Code	Description		Comments	
	A	Small inter-phase barrier		Interphase barriers may be required for multi-pole products that have UL approvals. Contact your nearest CBI sales office for assistance.	
	C	Z Inter-phase barrier			
	X	Not applicable			
	Z	Special specify			
Group 20: Approvals and typical safety marks (Standard marks and approval basket covers most regions)	Code	Description		Comments	
	1	UL recognized, CSA, VDE			
	2	UL Listed, CSA, VDE			
	3	UL Listed (UL489A), VDE			
	4	UL recognized, CSA			
	Z	No approvals			
	A	UL recognized, only			
X	Special specify				
Group 21: Optional safety marks	Code	Description		Comments	
	C	CCC Mark		Required for products exported to Peoples Republic of China	
	X	Not applicable		Only required in specific cases where import into the country is prohibited, unless the product carries the mark.	
	Z	Special specify			

For Options not listed please contact CBI for assistance

Example code: C-ASM4XBEBBS2000AXX-XXXXXWHHCZC

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TECHNICAL DATA

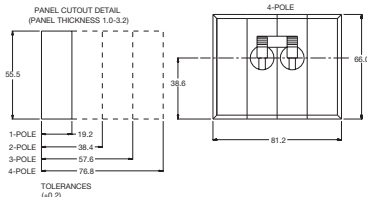


Figure 1.1

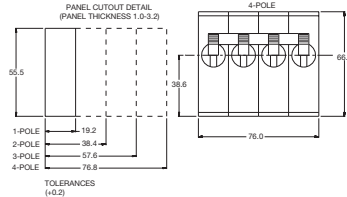


Figure 1.2

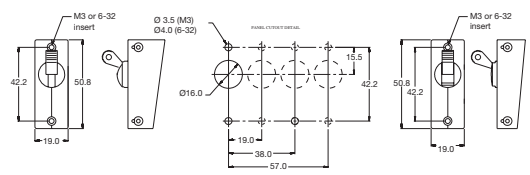


Figure 1.4

Figure 1.3

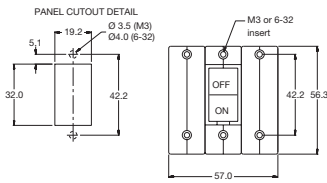


Figure 1.5



Figure 2.1

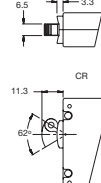


Figure 2.2

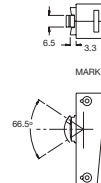


Figure 2.3

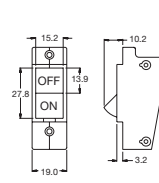


Figure 2.4

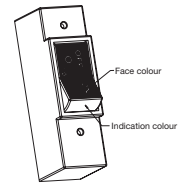


Figure 2.5

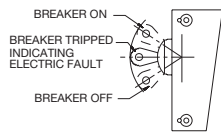


Figure 2.6

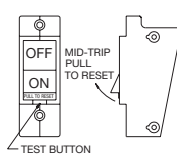


Figure 2.7

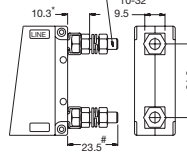


Figure 3.1

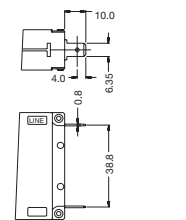


Figure 3.2

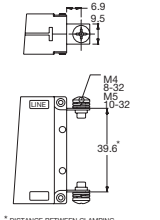


Figure 3.3

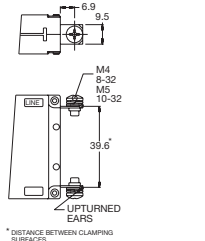


Figure 3.4

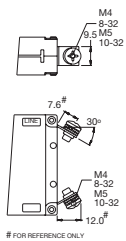


Figure 3.5

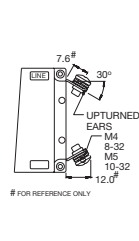


Figure 3.6

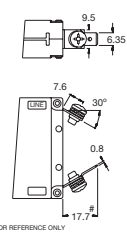


Figure 3.7

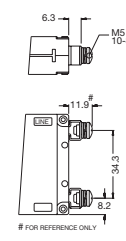


Figure 3.8

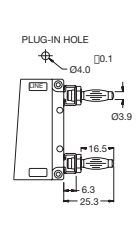


Figure 3.9

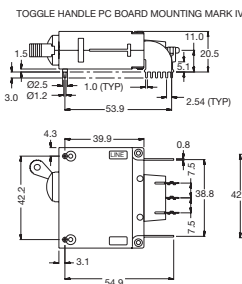


Figure 1.6

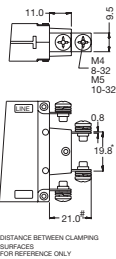


Figure 12.1

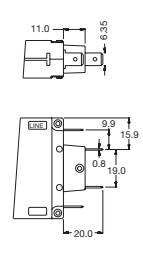


Figure 12.2

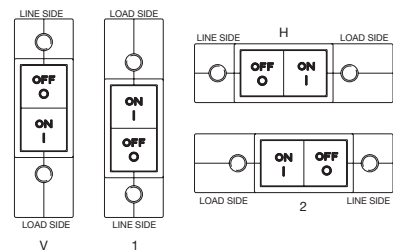


Figure 17.1

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