

B-Frame - Series Circuit Breakers



The B-Frame is a very compact yet robust circuit breaker. Used in various applications where space is constrained, the B-Frame is available in a variety of configurations, with different types of handles such as standard, rocker, protected rocker, push-pull, and push-to-reset handle types. The B-Frame is suitable for various applications in telecoms, lighting, railway signalling and solar applications. The B-Frame is also available as a 300 Vdc double pole switch.

B-Frame Profile

The B-Frame is available in single pole and double pole configurations. This miniaturised precision breaker is available for both AC and DC applications, with a choice of time delay characteristics and auxiliary switch options. The B-Frame provides the solution when space constraints exist.

Approvals

The B-Frame circuit breaker carries various approvals such as VDE, cURus, EAC, CCC and is CE certified. It is also recognised to UL 1077, UL 508 and listed to UL 489A.



(UL489A)



(UL1077, CSA C22.2 No.235-04)



(DIN / EN 60934)



(GB 14048.2 ; GB 17701)



(IEC 60934)



Features

- AC and DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability independent of ambient temperature
- Up to two poles
- VDE, EAC and CCC approved, CE certified
- UL compliant (recognised / listed)
- Ratings 0.1 A to 30 A (Specific certifications)
- Precision tripping characteristics
- Wide range of circuits, mountings, terminations and time delays
- Optional auxiliary switch
- Optional illuminated rocker handle
- 300 Vdc switch (2 pole)

Applications

- Lighting equipment
- Office equipment
- Power supplies
- Telecom power distribution
- Small generators and motors
- Railway signalling systems
- Entertainment systems
- Vending machines
- Power distribution units (PDU)
- Suitable for motor starting
- Solar and renewable power

Hydraulic-Magnetic Circuit Breakers 100% rated, unaffected by ambient temperature

B-Frame - Series Circuit Breakers

Technical Data

Product Type	B-Frame
Ambient Operating Temperature	-40°C to +85°C
Endurance	Minimum of 1000 operations with current (UL 489A Clause 12)* 6000 operations with current (UL 1077 Clause 22, UL 508 Clause 48)*
Dielectric Strength	1000 Vac plus twice the rated voltage for one minute (UL 489A Clause 8, UL 1077 Clause 23, UL 508 Clause 51)*
Rated Impulse Withstand Voltage	2.5 kV (IEC 60934 Clause 8.1.3.1.1)*
Weight	30 g single pole, 60 g double pole (unpacked)
Altitude	Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	50 G to IEC 60068-2-27
Vibration	10 G to MIL-STD-202F
Flammability	I3 - Ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28
Toxicity	F1 - Smoke index of ≤ 20 which determines the fume class
Pollution Degree	PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected.
Accessories	Mounting accessories, legend plate

* Refer to the standard for details

Product Type	Circuit Breaker	Circuit Breaker	Circuit Breaker	Switch
Approvals	UL 1077, DIN / EN 60934, GB17701, CE, UKCA, EAC	UL 489A, DIN / EN 60934, GB17701	GB14048.2	UL 508
Number of Poles	1, 2	1	1, 2	2 (Series)
Maximum Voltages	240 Vac, 65 Vdc	80 Vdc	48 Vdc	300 Vdc
Current Ratings	0.1 - 30 Aac, 0.1 - 25 Adc	0.1 - 30 Adc	0.5 - 15 Adc	15 Adc
Interrupting Capacity	1 kA @ 240 Vac 0.5 kA @ 65 Vdc	0.6 kA @ 80 Vdc 1.5 kA @ 65 Vdc (UL & GB only)	1 kA	-
DC Polarity	-	Polarity sensitive		

Verify approvals for specific ratings in accordance with the relevant test certificate

Ordering Information

Group 1: Frame, Colour and Handle Type	Code	Description	Code	Description
	BA	Black body, square handle	BE	Black body, illuminated rocker handle
	BB	Black body, paddle handle	BF	Black body, push-to-reset handle
	BC	Black body, baton handle	BG	Black body, push-pull handle
	BD	Black body, rocker handle	BH	Black front plate, feed through pole
Group 2: Mounting	Code	Description	Comments	
	A	Centre lock (thread neck) metric (M12)	Thread neck. Rocker handle is not an option.	
	C	Centre lock (thread neck) imperial (1/2" – 32)	Thread neck. Rocker handle is not an option.	
	G	Snap-in vertical mounting without rocker guard	Rocker & illuminated rocker handle only	
	H	Snap-in vertical mounting with rocker guard	Rocker & illuminated rocker handle only	
	M	Snap-in horizontal mounting without rocker guard	Rocker & illuminated rocker handle only	
	N	Snap-in horizontal mounting with rocker guard	Rocker & illuminated rocker handle only	
	Q	Centre lock (thread neck) - imperial (3/8" – 32)	Thread neck. Only option for double pole push-to-reset and push-pull handles. Rocker handle is not an option.	
R	Clip-in mounting - centre lock (thread neck) push-pull & push-to-reset only	Rocker handle is not an option		
Group 3: Number of Poles and Termination	Code	Description	Code	Description
	1	Single pole, quick connect	A	Single pole, bent quick connect terminal 90° outward
	2	Double pole, quick connect	B	Double pole, bent quick connect terminal 90°outward
	3	Single pole unit, screw terminal (M4 / 8-32) 45° bent	C	Single pole, screw terminal (M4 / 8-32)
	4	Double pole unit, screw terminal (M4 / 8-32) 45° bent	D	Double pole, screw terminal (M4 / 8-32)
	5	Single pole, clamp terminal M3.5		
6	Double pole, clamp terminal M3.5			

B-Frame - Series Circuit Breakers

Ordering Information

Group 4: Rated Voltage - Main Circuit	Code	Description			Comments			
	E	65 Vdc			Choose D in Group 5			
	F	80 Vdc - polarity sensitive			Choose D in Group 5			
	G	48 Vdc						
	M	65 Vdc / 240 Vac			Choose M in Group 5			
	P	240 V			Choose A in Group 5			
Group 5: Frequency	Code	Description			Comments			
	A	AC 50 / 60Hz			Group 4 option P only			
	D	DC			Group 4 options E, F and T			
	M	AC / DC			Group 4 option M only			
Group 6: Circuit Configuration (Circuit Breaker's Internal Construction)	Code	Description			Comments			
	A	Switch			May contain an auxiliary switch as an option			
	B	Circuit breaker (series trip, current coil in series)			May contain an auxiliary switch as an option			
	D	Relay trip (voltage sensing) 4 terminal			Auxiliary switch not applicable			
Group 7: Auxiliary Switch(es)	Code	Description			Comments			
	0	No auxiliary switch			Only option with rear flush screw terminal			
	1	1 x change-over (3 A - 125 Vac, 24 Vdc)			Silver contacts			
	3	1 x change-over (0.1 A - 125 Vac, 30 Vdc)			Gold contacts			
Group 8: Handle, Indicator Colour and Marking (Specify Current Rating on Front or Handle if Required)	Code	Description		Code	Description			
	X	Not applicable		K	White (I-O & ON-OFF)			
	2	White (no marking)		L	Black (I-O & ON-OFF)			
	3	Black (no marking)		W	Orange (I-O & ON-OFF)			
	A	Green (I-O & ON-OFF)		Y	Red (I-O & ON-OFF)			
Group 9: Voltages for Illuminated Rocker Units (Illuminated only)	Code	Description			Code	Description		
	1	100 – 110 Vac lead connectors			A	100 – 110 Vac terminals connectors		
	2	200 – 240 Vac lead connectors			B	200 – 240 Vac terminal connectors		
	3	4 - 8 Vdc lead connectors (please specify)			C	4 - 8 Vdc terminal connectors (please specify)		
	4	16 – 24 Vdc lead connectors			D	16 – 24 Vdc terminal connectors		
	5	24 – 32 Vdc lead connectors (external resistor required)			E	24 – 32 Vdc terminal connectors (external resistor required)		
	7	8 – 16 Vdc lead connectors			G	8 – 16 Vdc terminal connectors		
Group 10: Time Delay Characteristics, Pulse Tolerance at 10 ms	Code	Description	System	Pulse Tolerance (X In)	Code	Description	System	Pulse Tolerance (X In)
	AD	Long time delay - AS & dual rated	AC and DC	6 - 8	BS	Medium delay	AC or DC	6 - 8
	BD	Medium time delay - V BS & dual rated	AC and DC	6 - 8	CS	Short delay	AC and DC	6 - 8
	CD	Short time delay - CS & dual rated	AC and DC	6 - 8	AW	Long time delay - AD & inertia delay	AC and DC	11 - 12
	AI	Long time delay - AS & inertia delay	AC or DC	11 - 12	BW	Medium time delay - BD & inertia delay	AC and DC	11 - 12
	BI	Medium time delay - BS & inertia delay	AC or DC	11 - 12	CW	Short time delay - CD & inertia delay	AC and DC	12
	CI	Short time delay - CS & inertia delay	AC or DC	11 - 12	OX	Switch	AC and DC	-
	AS	Long delay	AC or DC	6 - 8	OP	Instantaneous trip	AC and DC	None
Group 11: Rated Current (Main Circuit)	Code	Description			Comments			
	XXXX	No rating			Examples only - Specific A ratings possible from 0.02 A - 30 A			
	050M	50 mA						
	0500	5 A						
	1000	10 A						
	1250	12.5 A						
3000	30 A							

For options not listed, please contact CBI

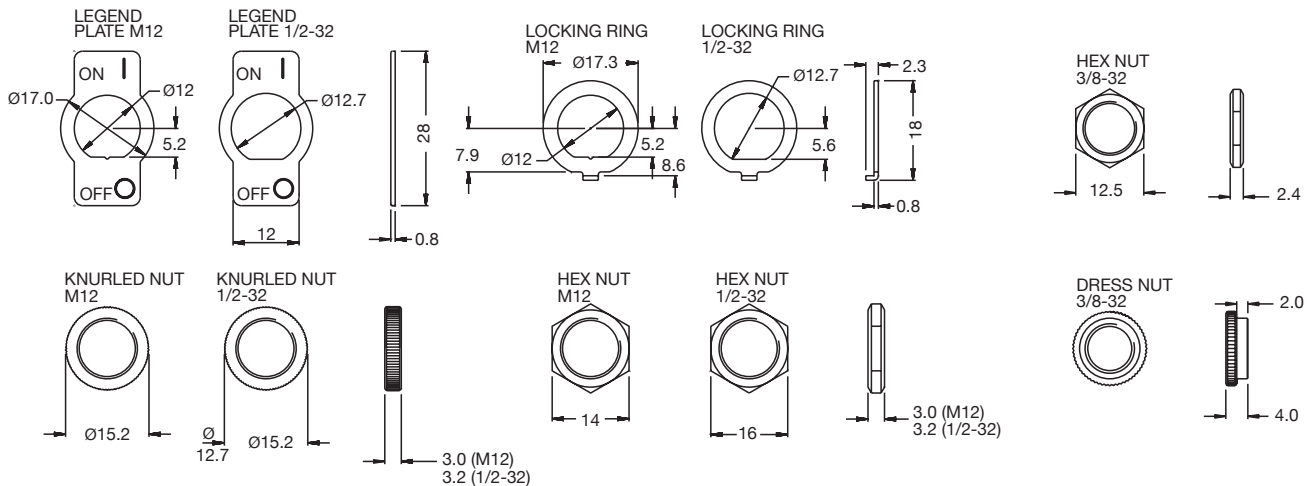
B-Frame - Series Circuit Breakers

Ordering Information

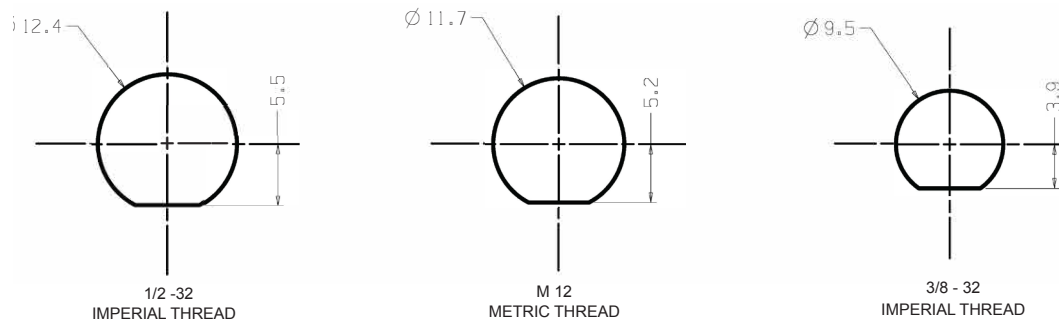
Code	Description	Code	Description
Group 12: Voltage and Current Ratings for Shunt and Relay Trip Construction			
X	Not applicable	D024	24 Vdc voltage coil
A024	24 Vac / dc voltage coil	M100	100 mA current coil
A065	65 Vac voltage coil	M020	20 mA current coil
A100	100 Vac voltage coil	K005	5 A current coil
A110	110 - 125 Vac voltage coil	K015	15 A current coil
A220	220 - 240 Vac voltage coil	K025	25 A current coil
D012	12 Vdc voltage coil	Recommended pulse duration: 20 ms to 40 ms	
Group 13: Approvals / Marks			
Code	Description	Comments	
1	UL recognised, UL 1077, IEC/EN 60934, CE, UKCA		
3	UL listed, UL 489A, IEC/EN 60934, CE, UKCA		
4	IEC 60947-2, GB 14048.2, VDE, CE, UKCA		
Group 14: Safety Marks			
Code	Description	Comments	
1	GB17701 or GB14048.2, CCC		
2	No safety marks		

Mounting Accessories

Mounting hardware must be ordered separately. Legend plates available for M12 and 1.2" only.



Panel cut-out dimensions for standard B Frame



Notes:

- General tolerance -0.0, +0.1 mm
- Fit hex nut onto threaded part of the product first
- Fit locking ring next if required
- Insert product through panel cut-out and adjust hex nut
For the required protrusion on front face of panel
- Fit legend plate if required
- Fit knurled/hex nut next and torque to 0.8nm max.
Do not over tighten knurled nut

B-Frame - Series Circuit Breakers

Mounting Kit Ordering Information

Reference	A	B	C	D	E	F	G	H	I	J	K
Mounting Kit Description	2 x Hex nuts	2 x Hex nuts 1 x Vertical legend plate	2 x Hex nuts 1 x Horizontal legend plate	2 x Hex nuts 1 x Vertical legend plate 1 x Locking ring	2 x Hex nuts 1 x Horizontal legend plate 1 x Locking ring	1 x Hex nut 1 x Knurled nut 1 x Vertical legend plate	1 x Hex nut 1 x Knurled nut 1 x Horizontal legend plate	1 x Hex nut 1 x Knurled nut 1 x Vertical legend plate 1 x Locking ring	1 x Hex nut 1 x Knurled nut 1 x Horizontal legend plate 1 x Locking ring	1 x Hex nut 1 x Dress nut	1 x Hex nut 1 x Knurled nut

Reference	M12 Order Number	1/2" - 32 Order Number	3/8" - 32 Order Number
A	3670031	3670041	3670129
B	3670032	3670042	-
C	3670033	3670043	-
D	3670034	3670044	-
E	3670035	3670045	-
F	3670036	3670046	-
G	3670037	3670047	-
H	3670038	3670048	-
I	3670039	3670049	-
J	-	-	3670130
K	3670338	3670337	-

Torque Table

Description	Size	Torque Value
Rear Screw	M4	1.2 - 1.5 N.m
	8 - 32	10 - 13 lbf.in
Clamp Screw	M3.5	1.2 - 1.5 N.m
Centerlock Front Mounting	M12	0.8 N.m
	1/2 - 32	7 lbf.in
	3/8 - 32	7 lbf.in

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