

Защитные автоматические выключатели DD

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DD Frame - Series Circuit Breakers



The DD Frame is a compact yet very powerful circuit breaker. Using the hydraulic-magnetic technology which ensures that the breaker performance is unaffected by ambient temperature, the CBI DD Frame series is suitable for various applications in telecom and datacom equipment. These applications include being the main breaker for battery applications, power supplies, distribution breaker for larger loads in DC branch protection, lighting control, UPS, inverters and DC power switching and in power distribution units (PDU). The DD Frame is also available as a switch.

Due to its robustness and ability to withstand harsh environmental conditions, the DD Frame breaker is also used in military applications, railway infrastructure, railway signalling and rolling stock and also in renewable energy solutions for protection in combiner boxes and other battery and storage applications.

DD Frame profile

The DD Frame is available in various configurations and can be structured to suit specific requirements. Available in 1 to 6 poles, this robust and versatile circuit breaker comes in both AC and DC configurations with a choice of various time delay characteristics.

Among the common configurations are the front mount standard handle, rocker handle, flush rocker handle options. As for the termination, Metric and imperial stud terminals, plug-in (bullet terminal), screw, and clamp terminal configurations are available. The breaker comes with the options of having an auxiliary switch and trip alarm. Customer specific configurations, DIN Rail mount and various other options are available.

The DD Frame compact and precision circuit breaker is made of high quality thermoset material, which offers increased electrical and mechanical endurance. The self-cleaning mechanism of the contact actuators ensures that the circuit breaker contacts are kept clean and operate smoothly, offering longer life span.

Approvals

The DD Frame circuit breaker is CE certified and carries various approvals such as VDE, cURus, CSA, EAC and CCC. It is also recognised to UL 1077, UL 1500 and UL 508, and listed to UL 489 and UL 489A.



Note:

The DD Frame replaces CBI's old version of the D Frame, and is similar in fit and form, with enhanced features.

DD Frame - Series Circuit Breakers

Features

- AC and DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability independent of ambient temperature
- Up to six poles
- VDE, EAC and CCC approved, CE certified
- UL compliant (listed / recognised)
- Ratings 0.1 to 100 A AC and 400 A DC (specific certifications)
- Precision tripping characteristics
- Wide range of circuits, mountings, terminations and time delays
- Two colour handle indication (two tone flush rocker)
- Optional mid-trip indication (standard handle)
- Optional auxiliary switch and trip alarm

Applications

- AC and DC branch circuit installations
- Power conditioning
- Telecom DC power distribution
- Alternative energy equipment
- UPS equipment
- Lighting control
- Mobile power generation equipment
- Battery protection

DD Frame HRC (high current rating)

CBI-electric: low voltage has developed a higher current rated product, capable of handling current ratings up to 125 A in a single pole and 250 A in a two pole configuration.



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Technical Data

Product Type	DD Frame
Operating Temperature Range	-40 °C to +85 °C
Endurance	10000 operations - 1500 electrical at rated current and voltage (IEC 60934) 6000 electrical operations (UL 1077)
Dielectric Strength	1000 - 2000 V, 50 Hz for one minute after testing (IEC 60934)
Weight	100 g per pole (unpacked)
Humidity	35 to 85% relative
Altitude	Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	100 G to MIL-STD-202G, test method 213B, test condition 1
Vibration	10 G to MIL-STD-202G test method 204D, test condition A
Flammability	I2 - No ignition at 850 °C with an oxygen index of ≥ 32
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.

Product Type	Circuit Breaker	Circuit Breaker	Circuit Breaker
Approvals	UL 489, CSA	IEC / EN 60947-2, VDE, CE, CCC	UL 489A, IEC / EN 60947-2, VDE, CE
Number of Poles	1, 2, 3	1, 2	1, 2 - 5 (parallel)
Maximum Voltages	120 V AC, 120 / 240 V AC, 240 V AC, 80 V DC	240 V AC, 80 V DC	80 V DC
Current Ratings	0.1 - 80 A AC, 0.1 - 100 A DC	0.1 - 50 A AC, 0.1 - 100 A DC	20 - 40 A
Interrupting Capacity	5 kA (240 V AC), 10 kA (DC)	10 kA (120 V AC)	10 kA (DC)
HIC	10 kA up to 20 A		

Product Type	Circuit Breaker	Circuit Breaker	Switch
Approvals	IEC / EN 60934, VDE, CE	UL 1077, CSA, cURus	UL 508, IEC / EN 60947-3, VDE, CE
Number of Poles	1 - 4	1 - 4	1, 2
Maximum Voltages	240 / 415 V AC, 80 V DC	277 / 480 V AC, 80 V DC	120 / 240 V AC, 240 V AC
Current Ratings	0.1 - 100 A (1 p), 0.1 - 70 A (2 - 4 p)	0.1 - 100 A (1 p), 0.1 - 70 A (2 - 4 p)	15 - 50 A
Interrupting Capacity	3 kA (AC), 5 kA (DC)	2 kA (AC), 5 kA (DC)	0.6 kA (for 1 s)

DD Frame - Series Circuit Breakers

DD Frame Series Circuit Breakers Ordering Information

Group 1: Frame	Code	Description	Comments					
	D	DD-Frame						
Group 2: Type	Code	Description	Comments					
	2	DD-Frame, DD-Type						
Group 3: Mounting	Code	Description	Comments					
	A	Front mount, rectangular aperture, standard (toggle) handle type	Warning: Maximum penetration depth into the product by the mounting screw is 6 mm					
	D	Centre lock mount, round aperture, baton handle	Baton handle only					
	G	Rail and surface mount, (fit DIN and Mini Rail and surface mount)						
	S	Front mount, rectangular aperture, flush rocker handle type	Warning: Maximum penetration depth into the product by the mounting screw is 6 mm					
Group 4: Handle	Code	Description	Comments					
	2	Standard handle, mid-trip						
	A	Standard (toggle) handle						
	C	Cut-off handle - single pole only	Only 1 handle per unit					
	E	Baton handle, reduced handle version for centre lock mount D only	Only 1 handle per unit					
	H	Flush rocker handle for mounting version S, reduced handle version	Only 1 handle per unit					
	M	Flush rocker handle, two tone for mounting version S, reduced handle version	Only 1 handle per unit					
	W	No handle, for reduced handle versions	For reduced handle version, on pole(s) without handle					
	Q	Flush rocker handle, push-to-reset, for mounting version S						
	R	Flush rocker handle, push-to-reset, two tone, for mounting version S						
Group 5: Termination	Code	Description	Comments					
	2X	Plug-in (bullet) terminal (Ø 6.25 mm X 21.5 mm)	50 A max					
	3X	Plug-in (bullet) terminal (Ø 7.80 mm X 21.5 mm)	100 A max					
	4X	Flush rear screw terminal, M5 or 10-32	100 A max					
	5X	Double quick connect terminal (0.8 mm X 6.35 mm)	50 A max					
	AX	Stud terminals, M5 or 10-32	60 A max					
	DX	Quick connect terminals (0.8 mm x 6.35 mm), top & bottom for mounting version G	50 A max. For mounting G only.					
	LX	Clamp terminals, top & bottom for mounting version G	30 A max. For mounting G only.					
	MX	Stud terminals, M6 or 1/4-20	100 A max					
	V1	Stud terminals (M6 or 1/4 - 20), for single bridged unit						
	V2	Plug-in (bullet) terminals (Ø 7.80 mm X 21.5 mm) for single bridged unit						
	W1	Stud terminals (M6 or 1/4 - 20), for multi pole bridged unit						
	W2	Plug-in (bullet) terminals (Ø 7.80 mm X 21.5 mm), for multi pole bridged unit						
	X1	Bridge terminal for 2 pole parallel construction width M8 nut for lug (on M6 or 1/4-20 stud terminal)						
	ZZ	Special - specify						
Group 6: Number of Poles	Code	Description	Code	Description	Code	Description		
	1	1 pole metric	4	4 pole metric	A	1 pole imperial		
	2	2 pole metric	5	5 pole metric	B	2 pole imperial		
	3	3 pole metric	6	6 pole metric	C	3 pole imperial		
					F	6 pole imperial		
Group 7: Rated Voltages and Frequency - Main Circuit	Code	Description	Comments	Code	Description	Comments		
	H	125 V DC		Q	240 / 415 V 50 / 60 Hz	3 phase multi-wire system		
	J	240 V 50 / 60 Hz		R	277 / 480 V 50 / 60 Hz	3 phase multi-wire system		
	K	277 V 50 / 60 Hz		S	120 / 240 V 50 / 60 Hz	3 wire centre tap supply, 120V per phase.		
	L	80V DC / 277 V 50 / 60 Hz	AC / DC version. With AC and DC curves.	V	60 V DC			
	M	80V DC / 240 V 50 / 60 Hz	AC / DC version. With AC and DC curves.	Z	Special - specify			
	N	80 V DC						
Group 8: Time Delay Characteristics (Curve Details); Pulse Tolerance at 10 ms	Code	Description	System	Pulse Tolerance (X In)	Code	Description	System	Pulse Tolerance (X In)
	AD	Long delay 50 / 60 Hz AS & Dual rated	AC and DC	8 - 10	CH	Short delay 50 / 60 Hz CS & high inrush	AC	12 - 15
	BD	Medium delay 50 / 60 Hz BS & Dual rated	AC and DC	8 - 10	AS	Long delay 50 / 60 Hz	AC or DC	8 - 10
	CD	Short delay 50 / 60 Hz CS & Dual rated	AC and DC	6 - 8	BS	Medium delay 50 / 60 Hz	AC or DC	8 - 10
	AE	Long delay 50 / 60 Hz AH & inertia delay	AC	28 - 35	CS	Short delay 50 / 60 Hz	AC or DC	6 - 8
	BE	Medium delay 50 / 60 Hz BH & inertia delay	AC	28 - 35	AW	Long delay 50 / 60 Hz AD & inertia delay	AC and DC	16 - 20
	CE	Short delay 50 / 60 Hz CH & inertia delay	AC	21 - 35	BW	Medium delay 50 / 60 Hz BD & inertia delay	AC and DC	16 - 20
	AI	Long delay 50 / 60 Hz AS & inertia delay	AC or DC	16 - 20	CW	Short delay 50 / 60 Hz CD & inertia delay	AC and DC	12 - 15
	BI	Medium delay 50 / 60 Hz BS & inertia delay	AC or DC	16 - 20	H3	Short delay	DC	6 - 8
	CI	Short delay 50 / 60 Hz CS & inertia delay	AC or DC	12 - 15	OP	Instantaneous trip 50 / 60 Hz	AC or DC	None
	AH	Long delay 50 / 60 Hz AS & high inrush	AC	16 - 20	OX	Switch 50 / 60 Hz	AC and DC	
	BH	Medium delay 50 / 60 Hz BS & high inrush	AC	16 - 20	ZZ	Special - specify		

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Group 9: Rated Current (Main Circuit) Examples only - Specific A Rating Possible	Code	Description			Comments			
	XXXX	No current, for voltage trip poles			Specific A rating possible from 0.1 – 400 A			
	050M	50 mA						
	100	1 A						
	1000	10 A						
	K400	400 A						
Group 10: Circuit Configuration (Circuit Breaker's Internal Construction)	Code	Description			Comments			
	AX	Switch						
	BX	Series trip (circuit breaker, current coil in series)						
	CX	Relay trip current sensing, centre terminal construction, 4 terminal			Total load 100 A max			
	DX	Relay trip voltage sensing, centre terminal construction, 4 terminal			See Group 12 for voltage options			
	EX	Shunt trip current sensing, 3rd terminal close to load side			Total load 100 A max			
	FX	Shunt trip voltage sensing, 3rd terminal close to load side			See Group 12 for voltage options			
	GX	Dual control shunt trip construction, 3rd terminal close to load side			Curves AH, BH, CH, AE, BE, CE not possible. See Group 12 for voltage options (Voltage coil normally at line voltage).			
	HX	Dual control relay trip construction (4 terminal)			Curves AH, BH, CH, AE, BE, CE not possible. See Group 12 for voltage options.			
	JX	Switch with auxiliary switch						
	KX	Series trip, with auxiliary switch						
	LX	Series trip, mid-trip handle, with trip alarm			Trip alarm requires mid-trip handle			
	MX	Series trip, trip alarm (latch type - reversed function)						
	H1	Dual control relay trip construction, fly leads for relay trip coil, with auxiliary switch			Fly leads (wire terminals) for relay trip coil (Group 13). Curves AH, BH, CH, AE, BE, CE not possible.			
ZZ	Special - specify							
Group 11: Auxiliary and Alarm Switches	Code	Description			Comments			
	X	Not applicable						
	A	Gold tips, equally spaced terminals, 2.75 mm, (0.108") 0.1 A Max						
	B	Silver tips, equally spaced terminals, 2.75 mm, (0.108") 10 A Max						
	C	Silver tips, offset terminals, 4.75 mm (0.187"), 10 A Max						
	M	Parallel bridge housing - for all parallel bridged poles						
	Z	Special - specify						
Group 12: Voltage and Current Ratings for Dual Control, Shunt and Relay Trip Construction	Code	Description	Code	Description	Code	Description	Code	Description
	XX	Not applicable	A3	65 V AC 50 / 60 Hz	B0	12 V DC	B3	80 V DC
	A1	12 V AC 50 / 60 Hz	A4	110 - 125 V AC 50 / 60 Hz	B1	24 V DC	ZZ	Special - specify
	A2	24 V AC 50 / 60 Hz	A5	220 - 240 V AC 50 / 60 Hz	B2	48 V DC		
Group 13: Terminal Options for Dual Control, Shunt and Relay Coils	Code	Description			Comments			
	X	Not applicable						
	B	Screw terminal, M5 or 10 - 32			50 A max			
	C	Quick connect terminals (0.8 mm X 6.35 mm)						
	D	Flying leads (wire terminals)			15 A max			
	E	Stud terminal, M5 or 10 - 32			60 A max			
Group 14: Voltage for Rocker Handle	Code	Description			Comments			
X	Not applicable							
Group 15: Terminal for Illuminated Rocker	Code	Description			Comments			
	X	Not applicable						
Group 16: Handle Colour	Code	Description			Comments			
	X	No handle						
	B	Black handle, white marking						
	G	Green handle, white marking						
	W	White handle, black marking						
	R	Red handle, white marking						
Group 17: Marking	Code	Description			Comments			
	X	No handle (n/a)						
	D	I – O and ON - OFF			For products requiring VDE & UL approvals			
	H	I – O and ON - OFF and ampere rating						
	1	Push-to-reset and ampere rating			Group 3 option S only. Group 4 options Q or R only. Flush rocker or two tone rocker handle.			
Group 18: Mounting Orientation for Marking	Code	Description		Code	Description		Comments	
	X	No handle (n/a)		H	Horizontal (line at the left)		If the breaker needs to be reverse fed, the printing will be upside down and codes 1 or 2 should be selected.	
	1	Vertical (reverse mounting, line at the bottom)		V	Vertical (standard mounting, line at the top)			
	2	Horizontal (line at the right)						
Group 19: Front Plate Marking and Test Button	Code	Description	Comments	Code	Description	Comments		
	1	Standard marking, with test button, standard handle	Test button for mechanical trip	A	Standard marking, standard handle	I – O and ON - OFF and ampere rating		
	2	No marking, with test button, rocker handle	Test button for mechanical trip	B	No marking, rocker handle			

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Ordering Information

Group 20: Inter-phase Barrier and Terminal Cover	Code	Description	Comments	Code	Description	Comments
	X	Not applicable		4	Z inter-phase barrier & terminal cover	Inter-phase barriers and terminal covers may be required for multi-pole products with UL listed and UL recognised approvals. See DD Frame Technical Guide.
	1	Terminal cover (s)		A	Small inter-phase barrier	
	2	Small inter-phase barrier & terminal cover		B	Large inter-phase barrier	
	3	Large inter-phase barrier & terminal cover		C	Z inter-phase barrier	
Group 21: Approvals (Product Normally Approved to)	Code	Description	Comments			
	1	CUR, UL recognised UL 1077, IEC / EN 60934, CSA, VDE, CE	UL 1077, normally IEC / EN 60934			
	2	CUL, UL listed UL 489, CSA, IEC / EN 60947-2, VDE, CE	UL 489, normally IEC / EN 60947-2			
	3	UL listed (UL 489A), IEC / EN 60947-2, VDE, CE	DC (telecommunication)			
	Z	No third party approvals				
Group 22: Safety Marks	Code	Description	Comments			
	X	Not applicable				
	C	CCC / CRCC	For products exported to Peoples Republic of China			
	Z	Special - specify				



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