Protection components
Thermal-magnetic circuit-breakers model GB2 for the protection of industrial equipment control circuits

Presentation

GB2 thermal-magnetic circuit-breakers protect and isolate the control circuits of industrial equipment with contactor coils, transformers.…
They protect and isolate single-phase auxiliary circuits such as solenoid valves, electro-brakes, battery chargers, supplied from the control circuit voltage.

GB2 CB, GB2 CD, GB2 DB

12 ratings are available, from 0.5 to 20 A, in single-pole (GB2-CB), single-pole + neutral (GB2-CD) and 2-pole (GB2-DB) versions.
They have a magnetic tripping threshold set at between 12 and 16 In to withstand the current peaks generated by many industrial components.

GB2 CS

2 ratings are available, 0.5 and 1 A, in single-pole version.
The magnetic tripping threshold is set between 5 and 7 In.

Functions, installation

Clip-on fixing onto all types of 35 mm ⊥ rails, on ⊔ rails and on Telequick mounting plates.
Upstream and downstream marking by means of AB1 clip-in markers.
Clear indication of “I” and “O” positions on the operator.
Tamper-proof device which requires no special maintenance (fixed magnetic and thermal tripping thresholds).

Selection for the protection of circuits supplied by transformers

Single-phase transformers.
Magnetising peak: 20 In.
Operation of magnetic trips: 13 In.

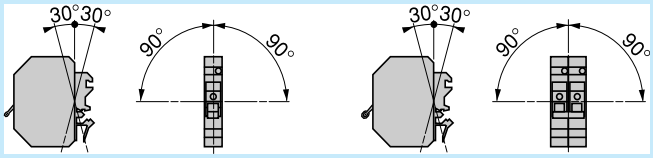
Power	Primary *(1)*		Secondary			
VA	220/240 V	380/415 V	24 V	48 V	110 V	220 V
40	GB2 DB05	GB2 DB05	GB2 CD07	GB2 CD06	GB2 CD05	GB2 CD05
63	GB2 DB05	GB2 DB05	GB2 CD08	GB2 CD07	GB2 CD06	GB2 CD05
100	GB2 DB06	GB2 DB05	GB2 CD10	GB2 CD07	GB2 CD06	GB2 CD05
160	GB2 DB07	GB2 DB06	GB2 CD14	GB2 CD09	GB2 CD07	GB2 CD06
250	GB2 DB07	GB2 DB06	GB2 CD16	GB2 CD12	GB2 CD08	GB2 CD07
400	GB2 DB08	GB2 DB07	GB2 CD22	GB2 CD14	GB2 CD09	GB2 CD07
630	GB2 DB10	GB2 DB08	–	GB2 CD21	GB2 CD12	GB2 CD08
1000	GB2 DB14	GB2 DB09	–	–	GB2 CD16	GB2 CD10
1600	GB2 DB20	GB2 DB14	–	–	–	GB2 CD14
2000	GB2 DB21	GB2 DB14	–	–	GB2 CD22	GB2 CD16
2500	GB2 DB22	GB2 DB20	–	–	–	GB2 CD20
3000	GB2 DB22	GB2 DB20	–	–	–	GB2 CD21
4000	–	GB2 DB21	–	–	–	GB2 CD22
5000	–	GB2 DB22	–	–	–	–

*(1) If the breaking capacity of the **GB2** is insufficient, use a **GV2 RT** with 2 poles connected in series, see page 24508/7.*

Characteristics : pages 21092/3 to 21092/5
References : pages 21093/2 and 21093/3
Dimensions : page 21093/3
Schemes : page 21093/3

Protection components

Thermal-magnetic circuit-breakers model GB2 for the protection of industrial equipment control circuits

Circuit-breaker type			GB2 CB	GB2 CD	GB2 DB	GB2 CS
Environment						
Conforming to standards			IEC 60947-1, 947-2, EN 60947-1, 60947-2			
Product certifications			CSA, NEMKO, UL	NEMKO, UL	–	–
Protective treatment			"TC"			
Degree of protection	Conforming to IEC 60529		IP 20			
Shock resistance	Conforming to IEC 60068-2-27		22 gn for 20 ms			
Vibration resistance	Conforming to IEC 60068-2-6		5 gn (5…110 Hz)			
Ambient air temperature around the device	Storage	**°C**	- 40…+ 80			
	Operation	**°C**	- 20…+ 60			
Flame resistance	Conforming to IEC 60695-2-1	**°C**	960			
Maximum operating altitude		**m**	3000			
Operating position	In relation to normal vertical mounting plane					
			GB2 CB,CD, CS		**GB2 DB**	
Cabling			**Minimum c.s.a.**		**Maximum c.s.a.**	
	Solid cable	**mm²**	1 x 0.75		1 x 6 or 2 x 4	
	Flexible cable with cable end	**mm²**	1 x 0.75		1 x 4 or 2 x 2.5	
Tightening torque		**N.m**	1.2			

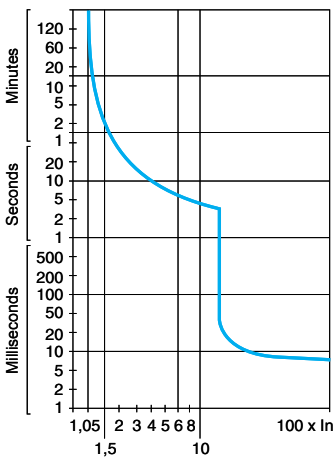
Technical characteristics										
Utilisation category	Conforming to IEC 60947-2		A		A		A		A	
Rated operational voltage (Ue)	Conforming to IEC 60947-2	**V**	415 *(1)*		250		415		415 *(1)*	
	Conforming to CSA C22-2 Nr 14 and UL 1077	**V**	277		–		277		–	
Rated operational frequency	Conforming to IEC 60947-2	**Hz**	50/60		50/60		50/60		50/60	
Rated impulse withstand voltage (U imp)	Conforming to IEC 60947-2	**kV**	4		4		4		4	
Total power dissipated per pole		**W**	2		2		2		1.9	
Mechanical and electrical durability	C.O.: Closing - Opening	**C.O.**	8000		8000		8000		8000	
Operational current correction coefficient (~ or ⎓)	According to the permissible ambient temperature	**°C**	**- 20**	**- 10**	**0**	**+ 10**	**+ 20**	**+ 30**	**+ 40**	**+ 50**	**+ 60**
	Correction coefficient		1.2	1.15	1.1	1.05	1	0.95	0.90	0.85	0.80
Tripping threshold	Of the magnetic trips		12…16 In		12…16 In		12…16 In		5…7 In	

*(1) One **GB2** circuit-breaker on each live conductor.*

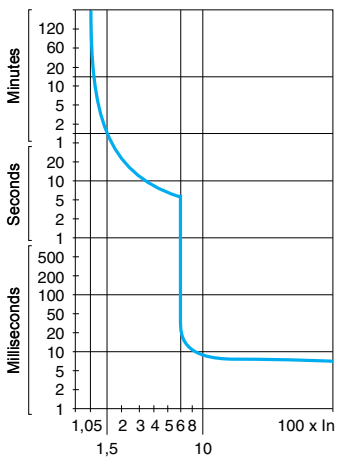
Tripping curves

Average operating time at 20 °C without prior current flow (cold state)

GB2 CB, GB2 CD, GB2 DB



GB2 CS



Presentation, selection : page 21092/2
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Protection components

Thermal-magnetic circuit-breakers model GB2 for the protection of industrial equipment control circuits

Circuit-breaker type				GB2											
				CB05	CB06	CB07	CB08	CB09	CB10	CB12	CB14	CB16	CB20	CB21	CB22
Rating			**A**	0.5	1	2	3	4	5	6	8	10	12	16	20
Breaking capacity conforming to IEC 60947-2 ∿ 50/60 Hz	110 V	Icu	**kA**	50	50	15	10	6	3	3	3	2	2	2	2
		Ics % *(1)*		100	50	50	50	50	75	75	75	75	75	75	75
	230/240 V	Icu	**kA**	50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	1.5
		Ics % *(1)*		25	25	25	50	50	75	75	75	75	75	75	75
	400/415 V	Icu	**kA**	50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	1.5
		Ics % *(1)*		25	25	25	50	50	75	75	75	75	75	75	75
Associated fuses, if required if Isc > breaking capacity Icu conforming to IEC 60947-2	110 V	aM	**A**	★	★	20	25	25	40	40	50	50	63	63	63
		gG	**A**	★	★	25	32	32	50	50	63	63	80	80	80
	230/240 V	aM	**A**	★	★	16	20	20	32	32	40	40	50	50	50
		gG	**A**	★	★	25	32	32	40	40	50	50	63	63	63
	400/415 V	aM	**A**	★	★	16	20	20	32	32	40	40	50	50	50
		gG	**A**	★	★	25	32	32	40	40	50	50	63	63	63

Circuit-breaker type				GB2											
				CD05	CD06	CD07	CD08	CD09	CD10	CD12	CD14	CD16	CD20	CD21	CD22
Rating			**A**	0.5	1	2	3	4	5	6	8	10	12	16	20
Breaking capacity conforming to IEC 60947-2 ∿ 50/60 Hz	110 V	Icu	**kA**	50	50	15	10	6	3	3	3	2	2	2	2
		Ics % *(1)*		100	50	50	50	50	75	75	75	75	75	75	75
	230/ 240 V	Icu	**kA**	50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	1.5
		Ics % *(1)*		25	25	25	50	50	75	75	75	75	75	75	75
Associated fuses, if required if Isc > breaking capacity Icu conforming to IEC 60947-2	110 V	aM	**A**	★	★	20	25	25	40	40	50	50	63	63	63
		gG	**A**	★	★	25	32	32	50	50	63	63	80	80	80
	230/240 V	aM	**A**	★	★	16	20	20	32	32	40	40	50	50	50
		gG	**A**	★	★	25	32	32	40	40	50	50	63	63	63

Circuit-breaker type				GB2											
				DB05	DB06	DB07	DB08	DB09	DB10	DB12	DB14	DB16	DB20	DB21	DB22
Rating			**A**	0.5	1	2	3	4	5	6	8	10	12	16	20
Breaking capacity conforming to IEC 60947-2 ∿ 50/60 Hz	110 V	Icu	**kA**	50	50	15	10	6	3	3	3	2	2	2	2
		Ics % *(1)*		100	50	50	50	50	75	75	75	75	75	75	75
	230/240 V	Icu	**kA**	50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	1.5
		Ics % *(1)*		25	25	25	50	50	75	75	75	75	75	75	75
	400/415 V	Icu	**kA**	50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	75
		Ics % *(1)*		25	25	25	50	50	75	75	75	75	75	1.5	75
Associated fuses, if required if Isc > breaking capacity Icu conforming to IEC 60947-2	110 V	aM	**A**	★	★	20	25	25	40	40	50	50	63	63	63
		gG	**A**	★	★	25	32	32	50	50	63	63	80	80	80
	230/240 V	aM	**A**	★	★	16	20	20	32	32	40	40	50	50	50
		gG	**A**	★	★	25	32	32	40	40	50	50	63	63	63
	400/415 V	aM	**A**	★	★	16	20	20	32	32	40	40	50	50	50
		gG	**A**	★	★	25	32	32	40	40	50	50	63	63	63

(1) As % of Icu.
★ Fuse not required. Breaking capacity Icu > Isc.

Protection components

Thermal-magnetic circuit-breakers model GB2 for the protection of industrial equipment control circuits

Circuit-breaker type					GB2											
					●●05	●●06	●●07	●●08	●●09	●●10	●●12	●●14	●●16	●●20	●●21	●●22
Breaking capacity (Icu) conforming to IEC 60947-2 ⎓			24 V	**kA**	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
			48 V	**kA**	1	1	1	1	1	1	1	1	–	–	–	–
Operational current conforming to IEC 60947-5-1 ⎓		DC-12	24 V	**A**	0.5	1	2	3	4	5	6	8	10	12	16	20
			48 V	**A**	0.5	1	2	3	4	5	6	8	10	12	16	20
		DC-13	24 V	**A**	0.5	1	2	3	4	5	6	8	10	12	16	20
			48 V	**A**	0.5	1	2	3	4	5	6	8	–	–	–	–

Circuit-breaker type					GB2					
					CS05			CS06		
Rating				**A**	0.5			1		
Breaking capacity conforming to IEC 60947-2 ∿ 50/60 Hz		110 V	Icu	**kA**	50			50		
			Ics % *(1)*		100			100		
		230/240 V	Icu	**kA**	50			50		
			Ics % *(1)*		25			25		
		400/415 V *(2)*	Icu	**kA**	50			50		
			Ics % *(1)*		25			25		
Breaking capacity (Icu) conforming to IEC 60947-2 ⎓			24 V	**kA**	1.5			1.5		
			48 V	**kA**	1			1		
Operational current conforming to IEC 60947-5-1 ⎓		DC-12	24 V	**A**	0.5			1		
			48 V	**A**	0.5			1		
		DC-13	24 V	**A**	0.5			1		
			48 V	**A**	0.5			1		
Maximum permissible line length for star-delta starting (length of cable containing 2 or more conductors)	With contactors LC● D09 …D18	Operational voltage		**V**	**48**	**110**	**230**	**48**	**110**	**230**
		C.s.a.	060 mm²	**m**	*(3)*	31	365	6	85	230
			0.75 mm²	**m**	*(3)*	39	460	8	110	290
			1 mm²	**m**	*(3)*	52	610	10	145	380
			1.5 mm²	**m**	*(3)*	78	910	15	220	570
			2.5 mm²	**m**	*(3)*	130	1520	26	360	950
			4 mm²	**m**	*(3)*	200	2400	41	580	1500
	With contactors LC● D25…D32	Operational voltage		**V**	**48**	**110**	**230**	**48**	**110**	**230**
		C.s.a.	0.60 mm²	**m**	*(3)*	*(3)*	230	*(3)*	56	230
			0.75 mm²	**m**	*(3)*	*(3)*	290	*(3)*	70	290
			1 mm²	**m**	*(3)*	*(3)*	390	*(3)*	95	380
			1.5 mm²	**m**	*(3)*	*(3)*	580	*(3)*	140	570
			2.5 mm²	**m**	*(3)*	*(3)*	970	*(3)*	230	950
			4 mm²	**m**	*(3)*	*(3)*	1500	*(3)*	375	1500
	With contactors LC● D40…D80	Operational voltage		**V**	**48**	**110**	**230**	**48**	**110**	**230**
		C.s.a.	0.60 mm²	**m**	*(3)*	*(3)*	46	*(3)*	13	100
			0.75 mm²	**m**	*(3)*	*(3)*	60	*(3)*	17	130
			1 mm²	**m**	*(3)*	*(3)*	80	*(3)*	22	170
			1.5 mm²	**m**	*(3)*	*(3)*	120	*(3)*	34	250
			2.5 mm²	**m**	*(3)*	*(3)*	190	*(3)*	56	420
			4 mm²	**m**	*(3)*	*(3)*	310	*(3)*	90	680

(1) As % of Icu.
*(2) One **GB2 CS** circuit-breaker on each live conductor.*
(3) Use relays.

Presentation, selection : page 21092/2
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Dimensions : page 21093/3
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Protection components

Thermal-magnetic circuit-breakers model GB2 for the protection of industrial equipment control circuits

534268



GB2 CB●●

Circuit-breakers with magnetic tripping threshold: 12 to 16 In

Single-pole

Conventional rated thermal current Ith *(1)*	Magnetic tripping current Id ± 20 %	Sold in lots of	Unit reference	Weight
A	A			kg
0.5	6.6	6	**GB2 CB05**	0.060
1	14	6	**GB2 CB06**	0.060
2	26	6	**GB2 CB07**	0.060
3	40	6	**GB2 CB08**	0.060
4	52	6	**GB2 CB09**	0.060
5	66	6	**GB2 CB10**	0.060
6	83	6	**GB2 CB12**	0.060
8	108	6	**GB2 CB14**	0.060
10	138	6	**GB2 CB16**	0.060
12	165	6	**GB2 CB20**	0.060
16	220	6	**GB2 CB21**	0.060
20	270	6	**GB2 CB22**	0.060

534269



GB2 CD●●

Single-pole + neutral

Conventional rated thermal current Ith *(1)*	Magnetic tripping current Id ± 20 %	Sold in lots of	Unit reference	Weight
A	A			kg
0.5	6.6	6	**GB2 CD05**	0.070
1	14	6	**GB2 CD06**	0.070
2	26	6	**GB2 CD07**	0.070
3	40	6	**GB2 CD08**	0.070
4	52	6	**GB2 CD09**	0.070
5	66	6	**GB2 CD10**	0.070
6	83	6	**GB2 CD12**	0.070
8	108	6	**GB2 CD14**	0.070
10	138	6	**GB2 CD16**	0.070
12	165	6	**GB2 CD20**	0.070
16	220	6	**GB2 CD21**	0.070
20	270	6	**GB2 CD22**	0.070

534270



GB2 DB●●

2-pole

Conventional rated thermal current Ith *(1)*	Magnetic tripping current Id ± 20 %	Sold in lots of	Unit reference	Weight
A	A			kg
0.5	6.6	3	**GB2 DB05**	0.115
1	14	3	**GB2 DB06**	0.115
2	26	3	**GB2 DB07**	0.115
3	40	3	**GB2 DB08**	0.115
4	50	3	**GB2 DB09**	0.115
5	66	3	**GB2 DB10**	0.115
6	83	3	**GB2 DB12**	0.115
8	108	3	**GB2 DB14**	0.115
10	138	3	**GB2 DB16**	0.115
12	165	3	**GB2 DB20**	0.115
16	220	3	**GB2 DB21**	0.115
20	270	3	**GB2 DB22**	0.115

(1) Conforming to IEC 60947-1.

Presentation, selection : page 21092/2
Characteristics : pages 21092/3 to 21092/5
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Schemes : page 21093/3

Circuit-breakers with magnetic tripping threshold: 5 to 7 In

534271



GB2 CS●●

Single-pole

Conventional rated thermal current Ith *(1)*	Magnetic tripping current Id ± 20 %	Sold in lots of	Unit reference	Weight
A	A			kg
0.5	3.3	6	**GB2 CS05**	0.055
1	6	6	**GB2 CS06**	0.055

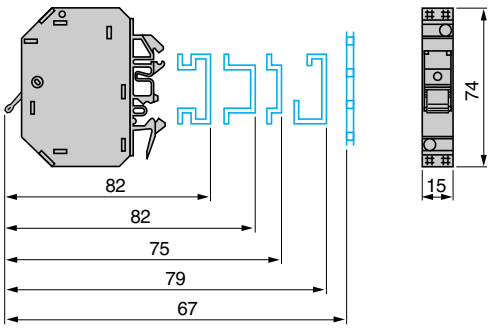
(1) Conforming to IEC 60947-1.

Accessories for circuit-breakers GB2-CB, DB and CS

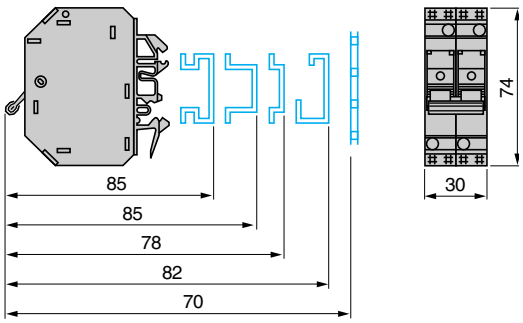
Description	Sold in lots of	Unit reference	Weight
			kg
Busbar set for supply to 10 GB2-DB or 20 GB2-CB or GB2-CS with 2 connectors	1	**GB2 G210**	0.100
Supply connector	10	**GB2 G01**	–

Dimensions

GB2 CB●●, GB2 CD●●, GB2 CS●●



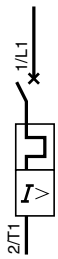
GB2 DB●●



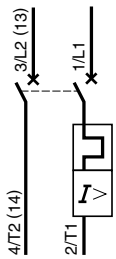
Marking: up to twelve AB1 R clip-in markers.

Schemes

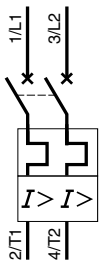
GB2 CB●●



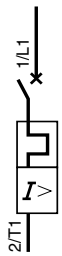
GB2 CD●●



GB2 DB●●



GB2 CS●●



Presentation, selection : page 21092/2

Characteristics : pages 21092/3 and 21092/5