

Product Details and Certifications

Cross Reference RA Part Number: PN-D12930

➔ **Product: 140G-R12S3-E25**

Description: 140G - Molded Case Switch, R frame, 125 kA,
Molded Case Switch (Isolator), Rated Current 2500 A



Representative Photo Only (actual product may vary based on configuration selections)

SYSTEM DATA

Supply Voltage	480V 50/60Hz / 600V 50/60 Hz
Interrupt Rating[kA]	125 kA at 480V / 100 kA at 600V

CIRCUIT BREAKER DATA

Bulletin Number	140G - Molded Case Circuit Breaker
Number of Poles	3 Poles
Frame Size	R frame
Rated Current(A)	2500 A
Current Range	80% Rated
Protection	Molded Case Switch (Isolator)

MANUFACTURING

Assembly	Factory Assembled
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INTERNAL ACCESSORIES

Auxiliaries(AX), Alarm (AL), Auxiliary/Alarm Combination (AX/AL), Right Side Mounting	N/A
Voltage for Aux Alarm Combination	N/A

Bulletin 140G
Molded Case Circuit Breakers
 Product Overview



Frame Reference	G-Frame	H-Frame	I-Frame	J-Frame	K-Frame	M-Frame	N-Frame	NS-Frame	R-Frame
Rated Current I_n	125 A	125 A	225 A	250 A	400 A	800 A	1200 A	1200 A	3000 A
No. of Poles	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4	3, 4
Interrupting Rating [kA]									
240V	50 65 100	65 100 150 200 200	50 65	65 100 150 200	100 150 200 200	100 200 200	65 100 150	65 100 150	125
480V	25 35 65	25 35 65 100 150	25 35	25 35 65 100	35 65 100 150	50 65 100	50 65 100	50 65 100	125
600Y/347V	10 14 25	—	10 10	—	—	—	—	—	—
600V	—	14 18 25 35	10 10	14 18 25 35	25 35 65 100	25 35 42	25 50 65	25 50 65	100
Breaking Capacity [I_{cu} (kA)]									
220...240V	65 85 100	65 85 100 150 200	65 85	65 85 100 150	85 100 200 200	85 100 200	85 100 200	85 100 200	130
415V	36 50 70	36 50 70 120 150	36 50	36 50 70 120	50 70 120 200	36 70 100	50 70 120	50 70 120	80
440V	36 50 65	36 50 65 100 150	25 40	36 50 65 100	40 65 100 180	35 50 65	50 65 100	50 65 100	80
690V	6 8 10	10 12 15 18 20	5 8	10 12 15 20	25 40 70 80	22 25 30	30 42 50	30 42 50	40
250V DC	36 50 70	36 50 70 85 100	36 50	36 50 70 85	—	36 50 65	—	—	—
500V DC	36 50 70	36 50 70 85 100	36 50	36 50 70 85	36 50 70 100	—	—	—	—
750V DC	—	—	—	—	25 36 70 70	16 36 50	—	—	—
Protection Type									
Thermal Magnetic	✓	✓	✓	✓	✓	✓	—	—	—
Electronic	—	✓	—	✓	✓	✓	✓	✓	✓
Molded Case Switch	✓	✓	✓	✓	✓	✓	✓	✓	✓
Internal Accessories									
Auxiliary Contact	✓	✓	✓	✓	✓	✓	✓	✓	✓
Alarm Contact	✓	✓	✓	✓	✓	✓	✓	✓	✓
AX/AL Combo	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trip Unit Contact	—	✓	—	✓	—	—	✓	✓	✓
Shunt Trip	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shunt Close	—	—	—	—	—	—	✓	✓	✓
UV Relay	✓	✓	✓	✓	✓	✓	✓	✓	✓
Field Installable	✓	✓	✓	✓	✓	✓	✓	✓	✓
External Accessories									
End Cap	STD	STD	STD	STD	STD	STD	STD	STD	—
25 mm Phase Barriers	STD	STD	STD	STD	STD	—	—	—	—
Insulators	STD	STD	STD	STD	STD	STD	—	—	—
Terminal Lugs	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extended Terminal	✓	✓	✓	✓	✓	✓	✓	✓	—
Spreader Terminal	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rear Terminal	—	—	—	—	—	—	✓	✓	✓
Phase barriers	✓	✓	✓	✓	✓	✓	✓	✓	✓
Terminal Cover	✓	✓	✓	✓	✓	✓	✓	✓	—
Direct Rotary	✓	✓	✓	✓	✓	✓	✓	—	—
Variable Depth (Door)	✓	✓	✓	✓	✓	✓	✓	—	—
Internal NFPA 79	✓	✓	✓	✓	✓	✓	✓	—	—
Flange Operator	✓	✓	✓	✓	✓	✓	✓	—	—
Flange Cable	✓	✓	✓	✓	✓	✓	✓	—	—
Motor Operator	✓	✓	✓	✓	✓	✓	—	✓	✓
Field Installable	✓	✓	✓	✓	✓	✓	✓	✓	✓

Molded Case Circuit Breakers

Product Selection — 2000...3000 A, R-Frame Stored Energy Operating Mechanism



Assembled Molded Case Circuit Breakers — 2000...3000 A R-Frame

Interrupting Rating/Breaking Capacity — Electronic Circuit Breakers

Interrupting Rating (50/60 Hz), UL 489/CSA C22.2-5, No. 5-02 [kA]			Breaking Capacity (50/60 Hz), IEC 60947-2										Interrupting Code‡
240V	480V	600V	220V		415V		440V		500V		690V		
			I_{cu} [kA]	I_{cs} [kA]	I_{cu} [kA]	I_{cs} [kA]	I_{cu} [kA]	I_{cs} [kA]	I_{cu} [kA]	I_{cs} [kA]	I_{cu} [kA]	I_{cs} [kA]	
125	125	100	130	97.5	80	60	80	60	40	40	40	40	R12



‡ See table below for Cat. No. selection

Electronic LSIG (Long, Short, Instantaneous, Ground Fault) - 80% Rated

Rated Current I_n [A]	Protection Type							Interrupting Code R12	
	L		S		I	G		Cat. No.	
	$I_1=0.4...1 \times I_n$	$t_1=sec.$	$I_2=1...10 \times I_n$	$t_2=sec.$	$I_3=1...10 \times I_n$	$I_4=0.2...1 \times I_n$	$t_4=sec.$	3 Poles	4 Poles
2000‡	800...2000	3, 12, 24, 36, 48, 72, 108, 144	1200...20000	0.1, 0.2, 0.3, 0.4, 0.5, 5.8, 6.6, 7.4, 8.2, 9, 10	3000...30000	400...2000	0.1, 0.2, 0.4, 0.8	140G-R12I3-E20	140G-R12I4-E20
2500‡	1000...2500	3, 12, 24, 36, 48, 72, 108, 144	1500...25000	0.1, 0.2, 0.3, 0.4, 0.5, 5.8, 6.6, 7.4, 8.2, 9, 10	3750...37500	500...2500	0.1, 0.2, 0.4, 0.8	140G-R12I3-E25	140G-R12I4-E25
3000‡	1200...3000	3, 12, 24, 36, 48, 72, 108, 144	1800...30000	0.1, 0.2, 0.3, 0.4, 0.5, 5.8, 6.6, 7.4, 8.2, 9, 10	4500...45000	600...3000	0.1, 0.2, 0.4, 0.8	140G-R12I3-E30	140G-R12I4-E30

‡ Listed I_1 , I_2 , I_3 & I_4 values are based on a 2000, 2500 & 3000 A rating plug value, respectively.

Electronic LSIG (Long, Short, Instantaneous, Ground Fault) - 100% Rated

Rated Current I_n [A]	Protection Type							Interrupting Code R12	
	L		S		I	G		Cat. No.	
	$I_1=0.4...1 \times I_n$	$t_1=sec.$	$I_2=1...10 \times I_n$	$t_2=sec.$	$I_3=1...10 \times I_n$	$I_4=0.2...1 \times I_n$	$t_4=sec.$	3 Poles	4 Poles
2000§	1000...2500	3, 12, 24, 36, 48, 72, 108, 144	1500...25000	0.1, 0.2, 0.3, 0.4, 0.5, 5.8, 6.6, 7.4, 8.2, 9, 10	3750...37500	500...2500	0.1, 0.2, 0.4, 0.8	140G-R12I3-E20-Z1	140G-R12I4-E20-Z1
2500§	1000...2500	3, 12, 24, 36, 48, 72, 108, 144	1500...25000	0.1, 0.2, 0.3, 0.4, 0.5, 5.8, 6.6, 7.4, 8.2, 9, 10	3750...37500	500...2500	0.1, 0.2, 0.4, 0.8	140G-R12I3-E25-Z1	140G-R12I4-E25-Z1
3000§	1200...3000	3, 12, 24, 36, 48, 72, 108, 144	1800...30000	0.1, 0.2, 0.3, 0.4, 0.5, 5.8, 6.6, 7.4, 8.2, 9, 10	4500...45000	600...3000	0.1, 0.2, 0.4, 0.8	140G-R12I3-E30-Z1	140G-R12I4-E30-Z1

§ Listed I_1 , I_2 , I_3 & I_4 values are based on a 2000, 2500 & 3000 A rating plug value, respectively.

Molded Case Switch — UL489§

Rated Current I_n [A]	Magnetic Trip I_m [A]	Cat. No.	
		3 Poles	4 Poles
2500	25 000	140G-R12S3-E25	140G-R12S4-E25



§ Does not provide overcurrent protection; may open at 40,000 A.

Rating Plugs

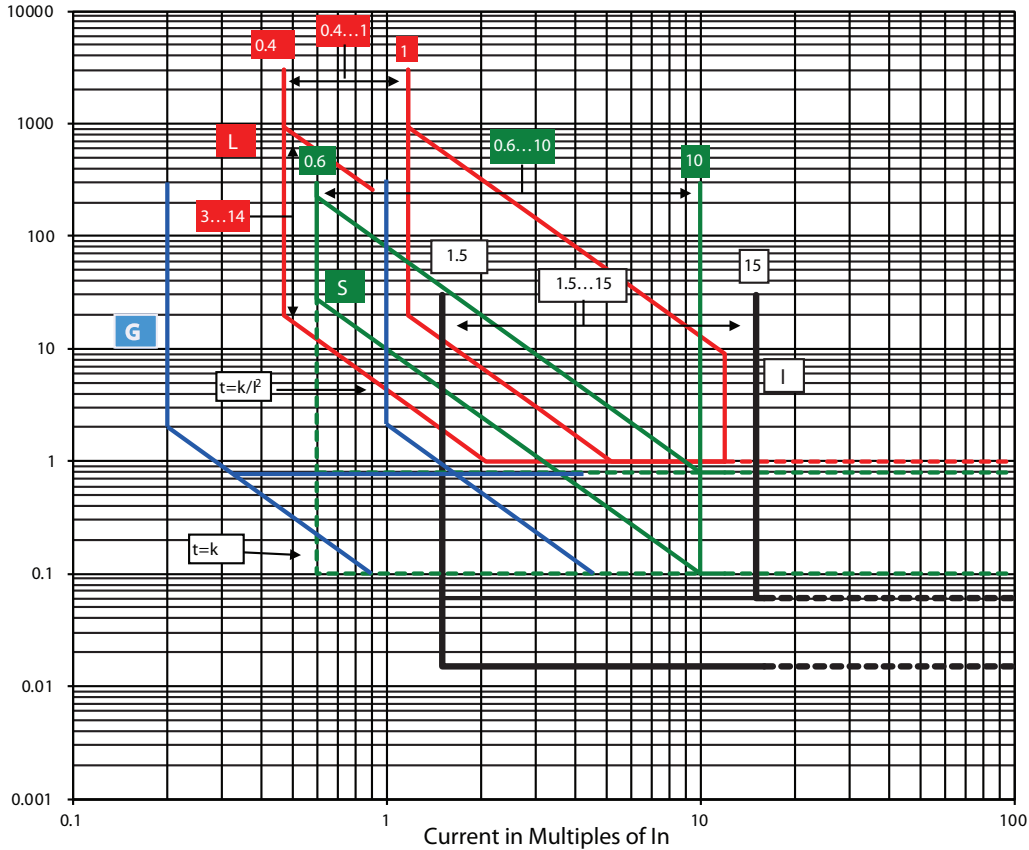
Rated Current I_n [A]	Cat. No.
1000	140G-NRP-E10
1200	140G-NRP-E12
1600	140G-RRP-E16
2000	140G-RRP-E20
2500	140G-RRP-E25
3000	140G-RRP-E30

Bulletin 140G
Molded Case Circuit Breakers
 Specifications — N-, NS-, and R-Frame

		N-, NS-Frame			R-Frame
Max. Rated Current	[A]	1200			2000/2500/3000
Rated insulation voltage, U_i , IEC	[V]	1000			1000
NEMA, UL, CSA					
Interrupting Rating Code		N5	N6	N0	R12
240V AC, 50/60Hz	[kA]	65	100	150	125
480V AC, 50/60Hz	[kA]	50	65	100	125
600Y/347V AC, 50/60Hz	[kA]	—	—	—	—
600V AC, 50/60 Hz	[kA]	25	50	65	100
IEC 60947-2					
Rated ultimate short-circuit breaking capacity, I_{cu}					
220/230/240V AC, 50/60Hz	[kA]	85	100	200	130
380V AC, 50/60Hz	[kA]	50	70	120	80
415V AC, 50/60Hz	[kA]	50	70	120	80
440V AC, 50/60Hz	[kA]	50	65	100	80
500V AC, 50/60Hz	[kA]	40	50	85	40
525V AC, 50/60Hz	[kA]	—	—	—	—
690V AC, 50/60Hz	[kA]	30	42	50	40
250V DC, 2 Poles in Series	[kA]	—	—	—	—
500V DC, 2 Poles in Series	[kA]	—	—	—	—
500V DC, 3 Poles in Series	[kA]	—	—	—	—
750V DC, 3 Poles in Series	[kA]	—	—	—	—
Rated service short-circuit breaking capacity, I_{cs}					
220/230/240V AC, 50/60Hz	[kA]	100%	100%	100%	100%
380V AC, 50/60Hz	[kA]	100%	100%	100%	100%
415V AC, 50/60Hz	[kA]	100%	100%	100%	100%
440V AC, 50/60Hz	[kA]	100%	100%	100%	100%
500V AC, 50/60Hz	[kA]	100%	100%	75%	100%
525V AC, 50/60Hz	[kA]	—	—	—	—
690V AC, 50/60Hz	[kA]	100%	75%	75%	100%
250V DC, 2 Poles in Series	[kA]	—	—	—	—
500V DC, 2 Poles in Series	[kA]	—	—	—	—
500V DC, 3 Poles in Series	[kA]	—	—	—	—
750V DC, 3 Poles in Series	[kA]	—	—	—	—
Mechanical Life	[No. Ops]	10000			15000
	[Ops/hr]	60			60
Electrical Life @ 415V AC	[No. Ops]	2000			4500 (2000 A) - 4000 (2500 A) - 3000 (3200 A)
	[Ops/hr]	60			60
Ambient Temp. w/out derating	°F [°C]	104 °F [40 °C]			104 °F [40 °C]
Storage Temperature	°F [°C]	-40...+176 °F [-40...+80 °C]			-40...+176 °F [-40...+80 °C]
Dimensions [Width/Depth/Height]	[mm]	3 poles: 210x154(N)/178(NS)x268			3 poles: 427x282x382
	[mm]	4 poles: 280x154(N)/178(NS)x268			4 poles: 553x282x382

Figure 32 - Time-current Curves for Bulletin 140G-R Molded Case Circuit Breaker, 600V AC, (50/60 Hz) 2000 A, 2500 A, 3000 A

Electronic Trip Unit. Long Delay Response, Short Delay with I²t Response, Instantaneous, and Ground Fault Curve



Protection	Disa- ble	Trip Threshold	Trip Time	Trip Threshold Tolerance	Trip Time Tolerance
L ($t=k/I^2$)		$I_1 = 0.4-0.425-0.45-0.475-0.5-...-1 \times I_n$	$t_1 = 3-12-24-36-48-72-108-144 \text{ s}^{(1)}$ @ $3I_1$	Release between 1.05 and $1.2 \times I_1$	$\pm 10\%$ $I_g \leq 6 \times I_n$
S ($t=k$)	✓	$I_2 = 0.6-0.8-1.2-1.8-2.4-3-3.6-4.2-5-5.8-6.6-7.4-8.2-9-10 \times I_n$	with $I > I_2$ $t_2 = 0.1-0.2-0.3-0.4-0.5-0.6-0.7-0.8 \text{ s}$	$\pm 7\%$ $I_g \leq 6 \times I_n$ $\pm 10\%$ $I_g > 6 \times I_n$	The best of: $\pm 10\%$ or $\pm 40 \text{ ms}$
S ($t=k/I^2$)	✓	$I_2 = 0.6-0.8-1.2-1.8-2.4-3-3.6-4.2-5-5.8-6.6-7.4-8.2-9-10 \times I_n$	$t_2 = 0.1-0.2-0.3-0.4-0.5-0.6-0.7-0.8 \text{ s}$ @ $10I_n$	$\pm 7\%$ $I_g \leq 6 \times I_n$ $\pm 10\%$ $I_g > 6 \times I_n$	$\pm 15\%$ $I_g \leq 6 \times I_n$ $\pm 20\%$ $I_g > 6 \times I_n$
I ($t=k$)	✓	$I_3 = 1.5-2-3-4-5-6-7-8-9-10-11-12-13-14-15 \times I_n$	$\leq 30 \text{ ms}$	$\pm 10\%$	
G ($t=k$)	✓	$I_4 = 0.2-0.3-0.4-0.6-0.8-0.9-1 \times I_n$	with $I > I_4$ $t_4 = 0.1-0.2-0.4-0.8 \text{ s}$	$\pm 7\%$	The best of: $\pm 10\%$ or $\pm 40 \text{ ms}$
G ($t=k/I^2$)	✓	$I_4 = 0.2-0.3-0.4-0.6-0.8-0.9-1 \times I_n$	$t_4 = 0.1 @ 4.47 I_4$ $t_4 = 0.2 @ 3.16 I_4$ $t_4 = 0.4 @ 2.24 I_4$ $t_4 = 0.8 @ 1.58 I_4$	$\pm 7\%$	$\pm 15\%$

For all other cases the following tolerance values apply.

Protection	Trip Threshold	Trip Time
L	$1.05 \leq x I_1 \leq 1.25$	$\pm 20\%$
S		$\pm 10\%$
I		$\pm 15\%$
G		$\pm 10\%$
Others		$\pm 20\%$

- The minimum value of this trip is 1s regardless of curve type (self-protection).
- These tolerances apply under the following conditions:
 - self-powered relay at full power (without start-up)
 - presence of auxiliary power supply
 - two-phase or three-phase power supply
 - preset trip time.
- The value of this trip is ensured between 40...500 ms from CB closing; this setting must be done by the customer.
- Curve accuracy applies from -20...55 °C (-4...131 °F) ambient. For possible continuous ampere derating for ambient above 40 °C (104 °F), contact your local Allen-Bradley distributor or Rockwell Automation sales representative.
- The right portion of the curve is determined by the interrupting rating of the circuit breaker.
- Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
- For high fault current levels an additional fixed instantaneous hardware override is provided at 14x (I_n).