# Product Details and Certifications

## Cross Reference RA Part Number: PN-D12928

**Product: 140G-N6S3-E12**

Description: 140G - Molded Case Circuit Breaker, N frame, 65 kA, Molded Case Switch (Isolator), Rated Current 1200 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] | 65 kA at 480V / 50 kA at 600V |

### *CIRCUIT BREAKER DATA*

| | |
|---|---|
| Bulletin Number | 140G - Molded Case Circuit Breaker |
| Number of Poles | 3 Poles |
| Frame Size | N frame |
| Rated Current(A) | 1200 A |
| Protection | Molded Case Switch (Isolator) |

### *MANUFACTURING*

| | |
|---|---|
| Assembly | Factory Assembled |

### *INTERNAL ACCESSORIES*

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

| 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

## Catalog Number Explanation — 1200 A, N-Frame

### Complete Circuit Breaker Assemblies — 1200 A, N-Frame

Examples given in this section are not intended to be used for product selection. Use ProposalWorks to configure the molded case circuit breaker. Use these configurations only to select all factory-installed options for shunt trips, undervoltage release units, auxiliary contacts, and alarm contacts. Use the codes from Table h to add on to the molded case circuit breaker cat. no. selected on the previous pages to form a complete cat. no. for a complete assembly with factory-installed options.

| 140G | – | N | 6 | S | 3 | - | E12 | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *a* | *b* | *c* | *d* | *e* | *f* | *g* | *h* | |

*a*

| Bulletin No. | |
|---|---|
| Code | Description |
| 140G | Global Molded Case Circuit Breaker |

*b*

| Frame/Rating | |
|---|---|
| Code | Description |
| N | 1200 A |

*c*

| Interrupting Rating/Breaking Capacity (based on $I_c$ at 480V) | |
|---|---|
| Code | Description |
| 5 | 50 kA |
| 6 | 65 kA |
| 0 | 100 kA |
| T | Trip unit |

*d*

| Protection Type | |
|---|---|
| Code | Description |
| H | Electronic LSI-long, short & instant |
| I | Electronic LSIG -long, short, instant & ground fault |
| K | Electronic LSIG-MM -long, short, instant, ground fault & MM |
| S | Molded case switch (isolator) |

*e*

| Poles | |
|---|---|
| Code | Description |
| 3 | 3 poles |
| 4 | 4 poles |

*f*

| Current Range | |
|---|---|
| Code | Description |
| E12 | 1200 A rating plug, standard |

*g*

| Rating | |
|---|---|
| Code | Description |
| No Digit | 80% Rated |
| Z1 | 100% Rated |

*h*

| Factory-Installed Internal Options♦ | |
|---|---|
| Shunt Trip and Undervoltage Release Units | |
| Code | Description |
| SJ | Shunt Trip, 24V AC/DC |
| SK | Shunt Trip, 48V AC/DC |
| SD | Shunt Trip, 110…120V AC/DC |
| SA | Shunt Trip, 220…240V AC/DC |
| SB | Shunt Trip, 380V AC |
| SC | Shunt Trip, 415…440V AC |
| UJ | Undervoltage Release, 24V AC/DC |
| UD | Undervoltage Release, 110…120V AC/DC |
| UA | Undervoltage Release, 220…240V AC/DC |
| UB | Undervoltage Release, 380…400V AC |
| UC | Undervoltage Release, 415…440V AC |
| No Digit | No Selection |
| **Auxiliary and Alarm Contacts** | |
| Code | Description |
| AJ | 1 Aux., 1 Alarm Contact, 24V |
| AB | 1 Aux., 1 Alarm Contact, 400V |
| FB | 2 Aux., 400V |

♦ Select up to two internal options: 1 for lower right side mounting (shunt trip or undervoltage release), 1 for upper right (auxiliary or alarm contact). Consult your local Rockwell automation sales office or Allen-Bradley distributor for further assistance.

## 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‡ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 220V | | 415V | | 440V | | 500V | | 690V | | |
| 240V | 480V | 600V | $I_{cu}$ [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] | |
| 65 | 50 | 25 | 85 | 85 | 50 | 50 | 50 | 50 | 40 | 40 | 30 | 30 | N5 |
| 100 | 65 | 50 | 100 | 100 | 70 | 70 | 65 | 65 | 50 | 50 | 42 | 32 | N6 |
| 150 | 100 | 65 | 200 | 200 | 120 | 120 | 100 | 100 | 85 | 64 | 50 | 38 | N0 |

‡ See table below for Cat. No. selection

## Electronic LSI (Long, Short, Instantaneous) - 80% Rated

| Rated Current $I_n$ [A] | Protection Type§ | | | | | Interrupting Code N5 | | Interrupting Code N6 | |
|---|---|---|---|---|---|---|---|---|---|
| | L | | S | | I | Cat. No. | | Cat. No. | |
| | $I_1$=0.4…1 x $I_n$ | $t_1$=sec. | $I_2$=1…10 x $I_n$ | $t_2$=sec. | $I_3$=1…10 x $I_n$ | 3 Poles | 4 Poles | 3 Poles | 4 Poles |
| 1200 | 480…1200 | 3, 12, 24, 36, 48, 72, 108,144 | OFF…12000 | 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8 | OFF…18000 | 140G-N5H3-E12 | 140G-N5H4-E12 | 140G-N6H3-E12 | 140G-N6H4-E12 |

§ Listed $I_1$, $I_2$, $I_3$ & $I_4$ values are based on a 1200 A Rating plug value.

| Rated Current $I_n$ [A] | Protection Type§ | | | | | Interrupting Code N0 | |
|---|---|---|---|---|---|---|---|
| | L | | S | | I | Cat. No. | |
| | $I_1$=0.4…1 x $I_n$ | $t_1$=sec. | $I_2$=1…10 x $I_n$ | $t_2$=sec. | $I_3$=1…10 x $I_n$ | 3 Poles | 4 Poles |
| 1200 | 480…1200 | 3, 12, 24, 36, 48, 72, 108,144 | 180…12000 | 0.1, 0.2, 0.3, 0.4, 0.5, 5.8, 6.6., 7.4, 8.2, 9, 10 | 1800…18000 | 140G-N0H3-E12 | 140G-N0H4-E12 |

§ Listed $I_1$, $I_2$, $I_3$ & $I_4$ values are based on a 1200 A Rating plug value.

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

| Rated Current $I_n$ [A] | Protection Type§ | | | | | | | Interrupting Code N5 | | Interrupting Code N6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | | S | | I | G | | Cat. No. | | Cat. No. | |
| | $I_1$=0.4…1 x $I_n$ | $t_1$=sec. | $I_2$=1…10 x $I_n$ | $t_2$=sec. | $I_3$=1…10 x $I_n$ | $I_4$=0.2…1 x $I_n$ | $t_4$=sec. | 3 Poles | 4 Poles | 3 Poles | 4 Poles |
| 1200 | 480…1200 | 3, 12, 24, 36, 48, 72, 108,144 | OFF…12000 | 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8 | OFF…18000 | 240…1200 | 0.1, 0.2, 0.4, 0.8 | 140G-N5I3-E12 | 140G-N5I4-E12 | 140G-N6I3-E12 | 140G-N6I4-E12 |

§ Listed $I_1$, $I_2$, $I_3$ & $I_4$ values are based on a 1200 A Rating plug value.

| Rated Current $I_n$ [A] | Protection Type§ | | | | | | | Interrupting Code N0 | |
|---|---|---|---|---|---|---|---|---|---|
| | L | | S | | I | G | | Cat. No. | |
| | $I_1$=0.4…1 x $I_n$ | $t_1$=sec. | $I_2$=1…10 x $I_n$ | $t_2$=sec. | $I_3$=1…10 x $I_n$ | $I_4$=0.2…1 x $I_n$ | $t_4$=sec. | 3 Poles | 4 Poles |
| 1200 | 480…1200 | 3, 12, 24, 36, 48, 72, 108,144 | 180…12000 | 0.1, 0.2, 0.3, 0.4, 0.5, 5.8, 6.6., 7.4, 8.2, 9, 10 | 1800…18000 | 240…1200 | 0.1, 0.2, 0.4, 0.8 | 140G-N0I3-E12 | 140G-N0I4-E12 |

§ Listed $I_1$, $I_2$, $I_3$ & $I_4$ values are based on a 1200 A Rating plug value.

## Electronic LSIG-MM (Long, Short, Instantaneous, Ground Fault - Maintenance Mode) - 80% Rated ★

| Rated Current $I_n$ [A] | Protection Type§ | | | | | | | Interrupting Code N5 | | Interrupting Code N6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | | S | | I | G | | Cat. No. | | Cat. No. | |
| | $I_1$=0.4…1 x $I_n$ | $t_1$=sec. | $I_2$=1…10 x $I_n$ | $t_2$=sec. | $I_3$=1…10 x $I_n$ | $I_4$=0.2…1 x $I_n$ | $t_4$=sec. | 3 Poles | 4 Poles | 3 Poles | 4 Poles |
| 1200 | 480…1200 | 3, 12, 24, 36, 48, 72, 108,144 | 180…12000 | 0.1, 0.2, 0.3, 0.4, 0.5, 5.8, 6.6., 7.4, 8.2, 9, 10 | 1800…18000 | 240…1200 | 0.1, 0.2, 0.4, 0.8 | 140G-N5K3-E12 | 140G-N5K4-E12 | 140G-N6K3-E12 | 140G-N6K4-E12 |

§ Listed $I_1$, $I_2$, $I_3$ & $I_4$ values are based on a 1200 A Rating plug value.

| Rated Current $I_n$ [A] | Protection Type§ | | | | | | | Interrupting Code N0 | |
|---|---|---|---|---|---|---|---|---|---|
| | L | | S | | I | G | | Cat. No. | |
| | $I_1$=0.4…1 x $I_n$ | $t_1$=sec. | $I_2$=1…10 x $I_n$ | $t_2$=sec. | $I_3$=1…10 x $I_n$ | $I_4$=0.2…1 x $I_n$ | $t_4$=sec. | 3 Poles | 4 Poles |
| 1200 | 480…1200 | 3, 12, 24, 36, 48, 72, 108,144 | 180…12000 | 0.1, 0.2, 0.3, 0.4, 0.5, 5.8, 6.6., 7.4, 8.2, 9, 10 | 1800…18000 | 240…1200 | 0.1, 0.2, 0.4, 0.8 | 140G-N0K3-E12 | 140G-N0K4-E12 |

★ Refer to page 30 for maintenance mode adjustment.

§ Listed $I_1$, $I_2$, $I_3$ & $I_4$ values are based on a 1200 A Rating plug value.

## Maintenance Mode (MM)

Maintenance Mode (MM) offers a preset set of protection parameters. MM allows systems testing when the molded case circuit breaker is energized or ON. This feature is a manual adjustment on the molded case circuit breaker, via a DIP switch. The following table illustrates the preset values for Maintenance Mode.

| Rated Current $I_n$ [A] | L | | S | | I | G | | MM |
|---|---|---|---|---|---|---|---|---|
| | $I_1$=1 x $I_n$ | $t_1$=MAX sec. | $I_2$=OFF | $t_2$=OFF sec. | $I_3$=4 x $I_n$ | $I_4$=OFF | $t_4$=OFF sec. | $I_5$=2.5 x $I_n$ |
| 1200 | 480…1200 | 3…144 | — | — | — | — | — | 1800…4800 |

## Molded Case Switch — UL489‡

| Rated Current $I_n$ [A] | Magnetic Trip [A] $I_m$ | Cat. No. | |
|---|---|---|---|
| | | 3 Poles | 4 Poles |
| 1200 | 20 000 | 140G-N6S3-E12 | 140G-N6S4-E12 |

‡ Does not provide overcurrent protection; may open above 20,000 A.

## Trip Units, Electronic LSI (Long, Short, Instantaneous), LSIG (Long, Short, Instantaneous, Ground Fault), LSIG-MM (Long, Short, Instantaneous, Ground Fault - Maintenance Mode)§

| Rated Current $I_n$ [A] | Protection Type | Cat. No. |
|---|---|---|
| | | 3 Poles |
| 1200 | H (LSI) | 140G-NTH-E12 |
| 1200 | I (LSIG) | 140G-NTI-E12 |
| 1200 | K (LSIG-MM) | 140G-NTK-E12 |

§ Supplied installed with each MCCB. Cat. Nos. listed are replacement parts.

## Rating Plugs

| Rated Current $I_n$ [A] | Cat. No. |
|---|---|
| 400 | 140G-NRP-D40 |
| 600 | 140G-NRP-D60 |
| 800 | 140G-NRP-D80 |
| 1000 | 140G-NRP-E10 |
| 1200 | 140G-NRP-E12 |
| 1250 ★ | 140G-NRP-E125 |

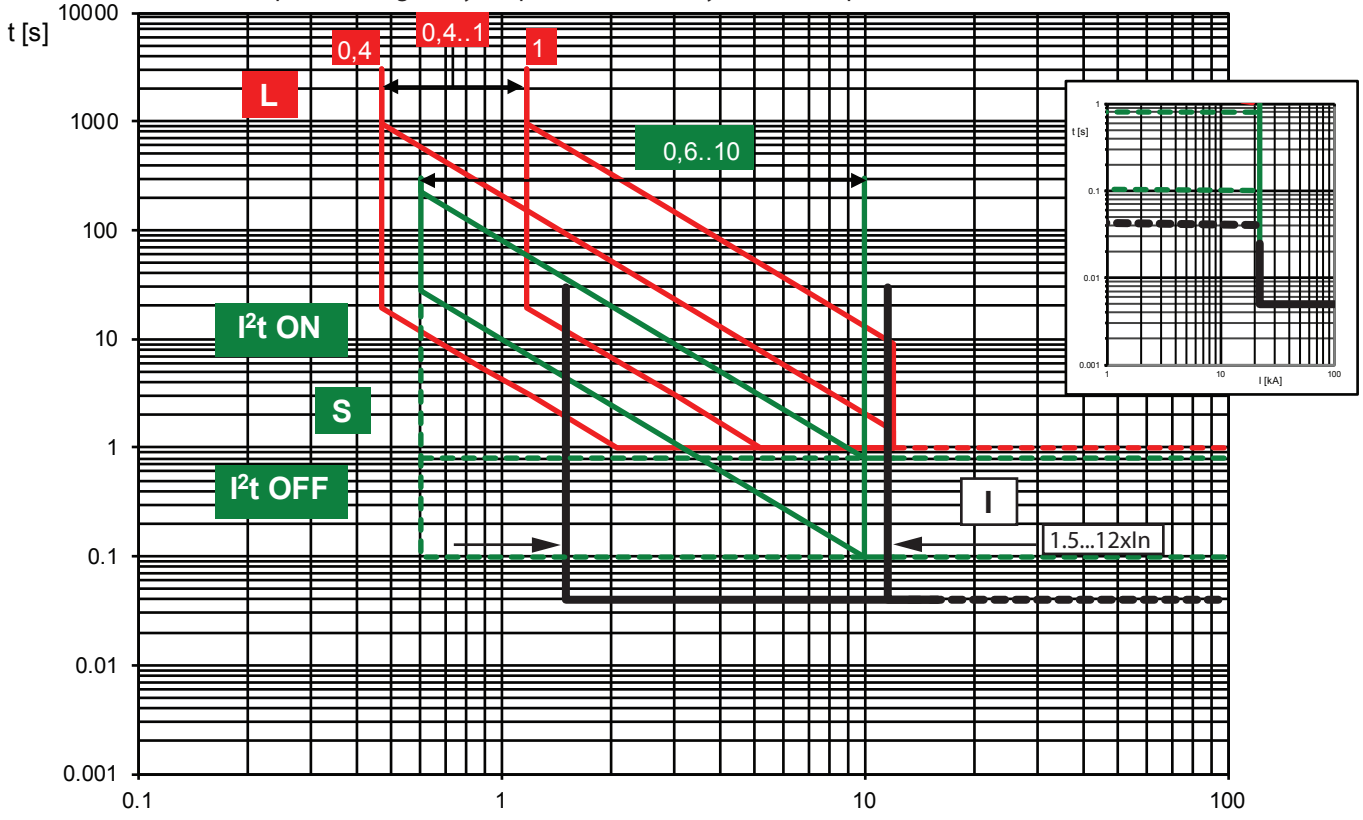
★ IEC only.

| | | 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% | |
| 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 |

## Time-Current Curves for Bulletin 140G-N (-NS) Molded Case Circuit Breaker

Available Rating Plugs: (In): 400; 600; 800; 1000; 1200; 1250A (IEC)

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




| Protection | Disable | Trip Threshhold | Trip Time | Trip Threshlold Tollerance (2) | Trip Time Tollerance (2) |
|---|---|---|---|---|---|
| L (t=k/I²) | | $I_1$ =0.4-0.44-0.48-0.52-... 1 x In | $t_1$ = 3-6-12-18 s (1) @6$I_1$ | Release between 1.05 and 1.2 x $I_1$ | ± 10% Ig ≤ 6xIn |
| 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 x In | with I > $I_2$ $t_2$ = 0.1-0.25-0.5-0.8 s | ± 7% Ig ≤ 6xIn<br>± 10% Ig > 6xIn | The best of: ± 10% or ± 40 ms |
| S (t=k/I²) | √ | $I_2$ = 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 x In | I =10xIn $t_2$ = 0.1-0.25-0.5-0.8 s | ± 7% Ig ≤ 6xIn<br>± 10% Ig > 6xIn | ± 15% Ig ≤ 6xIn<br>± 20% Ig > 6xIn |
| I (t=k) | √ | $I_3$ = 1.5-2.5-3-4-4.5-5-5.5-6.5-7-7.5-8-9-9.5-10.5-12- x In | ≤ 30ms | ± 10% | |

Notes:

1. The minimum value of this trip is 1s regardless of curve type (self-protection)
2. 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 ≥ 100ms
3. Curve accuracy applies from -20 C to +55 C ambient.
   For possible continuous ampere derating for ambient above 40 C, consult Rockwell Automation.
4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
6. For high fault current levels an additional fixed instantaneous hardware override is provided at 22kA.

For all cases not covereed by the above assumptions, the following tolerance values apply:

| Protection | Trip Threshhold | Trip Time |
|---|---|---|
| L | 1.05 ≤ x $I_1$ ≤ 1.25 | ± 20% |
| S | ± 10% | ± 20% |
| I | ± 15% | ≤ 60 ms |
| Others | ± 20% | |