

# Circuit breakers for branch circuit protection



## C60 UL489 차단기

Main functions of C60 UL 489 circuit breaker:

■ protection of circuits against:

□ short circuit currents

□ overload currents

■ control

■ isolation

Various applications:

■ semi-conductors

■ electronic machinery

■ control panel

■ metal working

■ telecommunication

■ food, beverage

■ packaging

■ crane

■ conveyors

■ pumps and compressors

■ HACR (Heating, Air conditioning, Refrigeration), HVAC

■ engine generators.

### Compliance with standards products

■ UL 489 circuit breakers File #E215117.

■ CSA C22.2 No. 5-02 circuit breakers File #179014.

■ IEC 60947-2, VDE 0660.

### Standard features

■ CE Marked.

■ Power circuit:

voltage rating: 120 up to 240 V ~, 480Y / 277 V ~, 60 V --- and 125 V ---

□ ampere interrupting ratings:

| Rating (A)<br>77°F / 25°C | Number of<br>poles 0.71 in.<br>(0,71 in.) | Voltage      | Interrupting rating (kA rms) |                    |
|---------------------------|-------------------------------------------|--------------|------------------------------|--------------------|
|                           |                                           |              | AIR<br>UL 489/CSA            | Icu<br>IEC 60947-2 |
| 0.5 ~ 20                  | 1P                                        | 277 V ~      | 10                           | 10                 |
|                           | 2P/3P                                     | 480Y/277 V ~ | 10                           | 10                 |
| 0.5 ~ 35                  | 1P                                        | 120 V ~      | 10                           | -                  |
|                           |                                           | 240 V ~      | 5                            | 10                 |
|                           | 2P/3P                                     | 240 V ~      | 10                           | 20                 |
|                           |                                           | 415 V ~      | -                            | 10                 |
|                           |                                           | 440 V ~      | -                            | 6                  |
|                           |                                           | 60 V ---     | 10 <sup>(1)</sup>            | 10 <sup>(1)</sup>  |
| 40 ~ 63                   | 1P                                        | 125 V ---    | 10 <sup>(1)</sup>            | 10 <sup>(1)</sup>  |
|                           |                                           | 60 V ---     | 10 <sup>(1)</sup>            | 10 <sup>(1)</sup>  |

<sup>(1)</sup> C curve only available

□ fast closing: allows increased withstand to the high inrush currents of some loads

□ fault current limiting

□ trip-free mechanism: contacts cannot be held in the ON position when the circuit breaker is tripped automatically

□ isolation with positive break indication-Green strip on the circuit breaker operating handle indicates that all poles open

□ number of operating cycles (O-C):

- electrical: 10000

- mechanical: 20000.

■ Environment:

□ tropicalization: treatment 2 (relative humidity: 95 % at 131 °F/55 °C)

□ degree of protection as per IEC 60529:

- on front panel: IP40 / IPXXB

- box lug connection: IP20 / IPXXB

- ring tongue terminal connection: IP10 / IPXXA

□ temperature:

- operation: -22 ~ 158 °F (-30 ~ 70 °C)

- storage: -40 ~ 176 °F (-40 ~ 80 °C).

■ Weight (oz./g):

| Type | 1P       | 2P       | 3P        |
|------|----------|----------|-----------|
| C60  | 3.88/110 | 7.75/220 | 11.64/330 |

### Connection

The C60 UL 489 is available in 3 different types of connection:

■ box lug/box lug

■ ring tongue terminal/ring tongue terminal (RTT/RTT)

■ box lug/ring tongue terminal.

PB10098182\_35



Box lug/box lug  
240 V ~

PB102035\_42



Box lug/box lug  
480Y / 277 V ~

PB10098182\_45



RTT/RTT  
240 V ~

PB102035\_42



RTT/RTT  
480Y / 277 V ~

PB10098182\_35



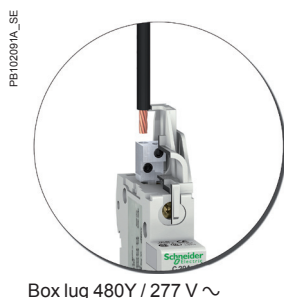
Box lug/RTT  
240 V ~

## Connection characteristics

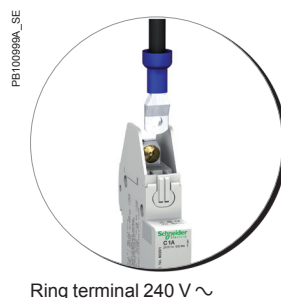
- Box lug for copper cables UL 486A File #E216919:
  - 0.5 ~ 25 A: (#14-#4 AWG) 2.5 ~ 25 mm<sup>2</sup> cables, torque 22 lb.in.
  - 30 ~ 63 A: (#14-#2 AWG) 2.5 ~ 35 mm<sup>2</sup> cables, torque 31 lb.in.
- Box lug C60 UL 480Y / 277 V ~ for copper cables UL 486A, File #E216919 :
  - 0.5 ~ 10 A: 1 ~ 1.5 mm<sup>2</sup> (#18-#16 AWG), 1 or 2 cables, torque (7 lb.in.)
  - 15 ~ 25 A: 2.5 ~ 6 mm<sup>2</sup> (#14-#10 AWG), 1 or 2 cables, torque (14 lb.in.).
- Ring terminal:
  - use single UL listed or CSA certified and insulated ring only
  - screw diameter 0.2 in (5 mm) torque 18 lb.in.



Box lug 240 V ~



Box lug 480Y / 277 V ~



Ring terminal 240 V ~



Ring terminal 480Y / 277 V ~

## Time-current curves

**C curve**-Overcurrent protection for all application types:

- ratings: 0.5 to 63 A set at 77°F (25°C)
- tripping threshold:
  - alternative current: between 7 and 10 I<sub>n</sub> (ratings 0.5 to 35 A)
  - direct current: between 7 and 14 I<sub>n</sub> (ratings 0.5 to 63 A).

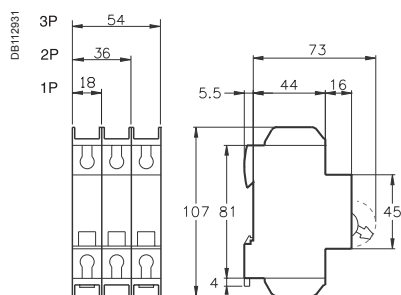
**D curve**-Overcurrent protection for loads with high inrush currents (motors, transformers etc.):

- ratings: 0.5 to 35 A set at 77°F (25°C)
- tripping threshold: The magnetic releases operates between 10 and 14 times ampere rating.

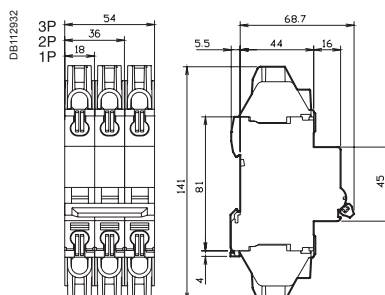
## Adaptable electrical auxiliaries

- Remote tripping:
  - shunt trip (MX + OF)
  - undervoltage release (MN).
- Remote indication:
  - auxiliary switch (OF)
  - alarm switch (SD).

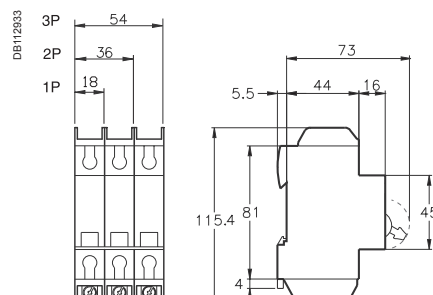
## Dimensions



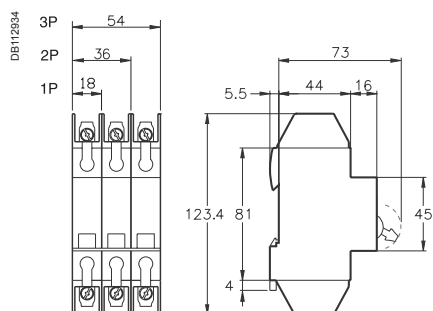
Box lug / box lug 240 V ~



Box lug / box lug 480Y / 277 V ~  
RTT/RTT 480Y / 277 V ~



Box lug / RTT 240 V ~

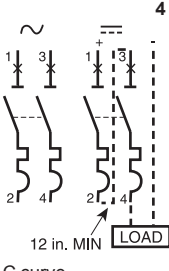


RTT / RTT 240 V ~

# C60 UL489 차단기 (일반형)

120 ~ 240V AC / 60 ~ 125V DC

## Box lug/box lug connection (upstream/downstream)

| Type                                                                                | Width in modules<br>0.354 in.<br>(9 mm) | Rating<br>(A) | Cat. no.<br>curve | curve |
|-------------------------------------------------------------------------------------|-----------------------------------------|---------------|-------------------|-------|
| 1P                                                                                  |                                         |               |                   |       |
|    | 2                                       | 0.5           | 60100             | 60117 |
|                                                                                     |                                         | 1             | 60101             | 60118 |
|                                                                                     |                                         | 1.5           | 60102             | 60119 |
|                                                                                     |                                         | 2             | 60103             | 60120 |
|                                                                                     |                                         | 3             | 60104             | 60121 |
|                                                                                     |                                         | 4             | 60105             | 60122 |
|                                                                                     |                                         | 5             | 60106             | 60123 |
|                                                                                     |                                         | 6             | 60107             | 60124 |
|                                                                                     |                                         | 7             | 60108             | 60125 |
|                                                                                     |                                         | 8             | 60109             | 60126 |
|                                                                                     |                                         | 10            | 60110             | 60127 |
|                                                                                     |                                         | 13            | 60111             | 60128 |
|                                                                                     |                                         | 15            | 60112             | 60129 |
|                                                                                     |                                         | 20            | 60113             | 60130 |
|                                                                                     |                                         | 25            | 60114             | 60131 |
|                                                                                     |                                         | 30            | 60115             | 60132 |
| 35                                                                                  | 60116                                   | 60133         |                   |       |
| 2P                                                                                  |                                         |               |                   |       |
|  | 4                                       | 0.5           | 60134             | 60151 |
|                                                                                     |                                         | 1             | 60135             | 60152 |
|                                                                                     |                                         | 1.5           | 60136             | 60153 |
|                                                                                     |                                         | 2             | 60137             | 60154 |
|                                                                                     |                                         | 3             | 60138             | 60155 |
|                                                                                     |                                         | 4             | 60139             | 60156 |
|                                                                                     |                                         | 5             | 60140             | 60157 |
|                                                                                     |                                         | 6             | 60141             | 60158 |
|                                                                                     |                                         | 7             | 60142             | 60159 |
|                                                                                     |                                         | 8             | 60143             | 60160 |
|                                                                                     |                                         | 10            | 60144             | 60161 |
|                                                                                     |                                         | 13            | 60145             | 60162 |
|                                                                                     |                                         | 15            | 60146             | 60163 |
|                                                                                     |                                         | 20            | 60147             | 60164 |
|                                                                                     |                                         | 25            | 60148             | 60165 |
|                                                                                     |                                         | 30            | 60149             | 60166 |
| 35                                                                                  | 60150                                   | 60167         |                   |       |
| 3P                                                                                  |                                         |               |                   |       |
|  | 6                                       | 1             | 60168             | 60184 |
|                                                                                     |                                         | 1.5           | 60169             | 60185 |
|                                                                                     |                                         | 2             | 60170             | 60186 |
|                                                                                     |                                         | 3             | 60171             | 60187 |
|                                                                                     |                                         | 4             | 60172             | 60188 |
|                                                                                     |                                         | 5             | 60173             | 60189 |
|                                                                                     |                                         | 6             | 60174             | 60190 |
|                                                                                     |                                         | 7             | 60175             | 60191 |
|                                                                                     |                                         | 8             | 60176             | 60192 |
|                                                                                     |                                         | 10            | 60177             | 60193 |
|                                                                                     |                                         | 13            | 60178             | 60194 |
|                                                                                     |                                         | 15            | 60179             | 60195 |
|                                                                                     |                                         | 20            | 60180             | 60196 |
|                                                                                     |                                         | 25            | 60181             | 60197 |
|                                                                                     |                                         | 30            | 60182             | 60198 |
|                                                                                     |                                         | 35            | 60183             | 60199 |

|  |                                                        |
|--|--------------------------------------------------------|
|  | Utilization in alternative current and direct current. |
|  | Utilization in alternative current only.               |

PB100981\_2-35

PB100983\_2-35

PB100982\_2-35

PB100984\_2-35

# C60 UL489 차단기 (일반형) 277 V AC

## Box lug/box lug connection (upstream/downstream)

PB102035-3S



E27969



| Type      | Width in modules<br>0.354 in.<br>(9 mm) | Rating<br>(A) | Cat. no.<br>curve | curve    |
|-----------|-----------------------------------------|---------------|-------------------|----------|
| <b>1P</b> |                                         |               | <b>C</b>          | <b>D</b> |
| 1         | 2                                       | 0.5           | MGN61300          | MGN61333 |
| 1         |                                         | 1             | MGN61301          | MGN61334 |
| 2         |                                         | 2             | MGN61302          | MGN61335 |
| 3         |                                         | 3             | MGN61303          | MGN61336 |
| 4         |                                         | 4             | MGN61304          | MGN61337 |
| 5         |                                         | 5             | MGN61305          | MGN61338 |
| 6         |                                         | 6             | MGN61306          | MGN61339 |
| 8         |                                         | 8             | MGN61307          | MGN61340 |
| 10        |                                         | 10            | MGN61308          | MGN61341 |
| 15        |                                         | 15            | MGN61309          | MGN61342 |
| 20        |                                         | 20            | MGN61310          | MGN61343 |

PB102036-3S



E27970



|           |   |     |          |          |
|-----------|---|-----|----------|----------|
| <b>2P</b> |   |     |          |          |
| 1 3       | 4 | 0.5 | MGN61311 | MGN61344 |
| 1         |   | 1   | MGN61312 | MGN61345 |
| 2         |   | 2   | MGN61313 | MGN61346 |
| 3         |   | 3   | MGN61314 | MGN61347 |
| 4         |   | 4   | MGN61315 | MGN61348 |
| 5         |   | 5   | MGN61316 | MGN61349 |
| 6         |   | 6   | MGN61317 | MGN61350 |
| 8         |   | 8   | MGN61318 | MGN61351 |
| 10        |   | 10  | MGN61319 | MGN61352 |
| 15        |   | 15  | MGN61320 | MGN61353 |
| 20        |   | 20  | MGN61321 | MGN61354 |

PB102037-3S



E27971



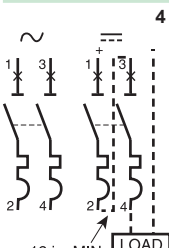
|           |   |     |          |          |
|-----------|---|-----|----------|----------|
| <b>3P</b> |   |     |          |          |
| 1 3 5     | 6 | 0.5 | MGN61322 | MGN61355 |
| 1         |   | 1   | MGN61323 | MGN61356 |
| 2         |   | 2   | MGN61324 | MGN61357 |
| 3         |   | 3   | MGN61325 | MGN61358 |
| 4         |   | 4   | MGN61326 | MGN61359 |
| 5         |   | 5   | MGN61327 | MGN61360 |
| 6         |   | 6   | MGN61328 | MGN61361 |
| 8         |   | 8   | MGN61329 | MGN61362 |
| 10        |   | 10  | MGN61330 | MGN61363 |
| 15        |   | 15  | MGN61331 | MGN61364 |
| 20        |   | 20  | MGN61332 | MGN61365 |

Utilization in alternative current only.

# C60 UL489 차단기 (Ring Terminal)

120 ~ 240V AC / 60 ~ 125V DC

## Ring tongue/ring tongue terminal connection (upstream/downstream)

| Type                                                                                | Width in modules<br>0.354 in.<br>(9 mm) | Rating<br>(A) | Cat. no.<br>curve | curve |
|-------------------------------------------------------------------------------------|-----------------------------------------|---------------|-------------------|-------|
| 1P                                                                                  |                                         |               |                   |       |
|    | 2                                       | 0.5           | 60200             | 60217 |
|                                                                                     |                                         | 1             | 60201             | 60218 |
|                                                                                     |                                         | 1.5           | 60202             | 60219 |
|                                                                                     |                                         | 2             | 60203             | 60220 |
|                                                                                     |                                         | 3             | 60204             | 60221 |
|                                                                                     |                                         | 4             | 60205             | 60222 |
|                                                                                     |                                         | 5             | 60206             | 60223 |
|                                                                                     |                                         | 6             | 60207             | 60224 |
|                                                                                     |                                         | 7             | 60208             | 60225 |
|                                                                                     |                                         | 8             | 60209             | 60226 |
|                                                                                     |                                         | 10            | 60210             | 60227 |
|                                                                                     |                                         | 13            | 60211             | 60228 |
|                                                                                     |                                         | 15            | 60212             | 60229 |
|                                                                                     |                                         | 20            | 60213             | 60230 |
|                                                                                     |                                         | 25            | 60214             | 60231 |
|                                                                                     |                                         | 30            | 60215             | 60232 |
|                                                                                     |                                         | 35            | 60216             | 60233 |
| 2P                                                                                  |                                         |               |                   |       |
|  | 4                                       | 0.5           | 60234             | 60251 |
|                                                                                     |                                         | 1             | 60235             | 60252 |
|                                                                                     |                                         | 1.5           | 60236             | 60253 |
|                                                                                     |                                         | 2             | 60237             | 60254 |
|                                                                                     |                                         | 3             | 60238             | 60255 |
|                                                                                     |                                         | 4             | 60239             | 60256 |
|                                                                                     |                                         | 5             | 60240             | 60257 |
|                                                                                     |                                         | 6             | 60241             | 60258 |
|                                                                                     |                                         | 7             | 60242             | 60259 |
|                                                                                     |                                         | 8             | 60243             | 60260 |
|                                                                                     |                                         | 10            | 60244             | 60261 |
|                                                                                     |                                         | 13            | 60245             | 60262 |
|                                                                                     |                                         | 15            | 60246             | 60263 |
|                                                                                     |                                         | 20            | 60247             | 60264 |
|                                                                                     |                                         | 25            | 60248             | 60265 |
|                                                                                     |                                         | 30            | 60249             | 60266 |
|                                                                                     |                                         | 35            | 60250             | 60267 |
| C curve                                                                             |                                         |               |                   |       |
|  | 4                                       | 1             | 60268             | 60284 |
|                                                                                     |                                         | 1.5           | 60269             | 60285 |
|                                                                                     |                                         | 2             | 60270             | 60286 |
|                                                                                     |                                         | 3             | 60271             | 60287 |
|                                                                                     |                                         | 4             | 60272             | 60288 |
|                                                                                     |                                         | 5             | 60273             | 60289 |
|                                                                                     |                                         | 6             | 60274             | 60290 |
|                                                                                     |                                         | 7             | 60275             | 60291 |
|                                                                                     |                                         | 8             | 60276             | 60292 |
|                                                                                     |                                         | 10            | 60277             | 60293 |
|                                                                                     |                                         | 13            | 60278             | 60294 |
|                                                                                     |                                         | 15            | 60279             | 60295 |
|                                                                                     |                                         | 20            | 60280             | 60296 |
|                                                                                     |                                         | 25            | 60281             | 60297 |
|                                                                                     |                                         | 30            | 60282             | 60298 |
|                                                                                     |                                         | 35            | 60283             | 60299 |
|                                                                                     |                                         | D curve       |                   |       |
| 3P                                                                                  |                                         |               |                   |       |
|  | 6                                       | 1             | 60268             | 60284 |
|                                                                                     |                                         | 1.5           | 60269             | 60285 |
|                                                                                     |                                         | 2             | 60270             | 60286 |
|                                                                                     |                                         | 3             | 60271             | 60287 |
|                                                                                     |                                         | 4             | 60272             | 60288 |
|                                                                                     |                                         | 5             | 60273             | 60289 |
|                                                                                     |                                         | 6             | 60274             | 60290 |
|                                                                                     |                                         | 7             | 60275             | 60291 |
|                                                                                     |                                         | 8             | 60276             | 60292 |
|                                                                                     |                                         | 10            | 60277             | 60293 |
|                                                                                     |                                         | 13            | 60278             | 60294 |
|                                                                                     |                                         | 15            | 60279             | 60295 |
|                                                                                     |                                         | 20            | 60280             | 60296 |
|                                                                                     |                                         | 25            | 60281             | 60297 |
|                                                                                     |                                         | 30            | 60282             | 60298 |
|                                                                                     |                                         | 35            | 60283             | 60299 |

Utilization in alternative current and direct current.

Utilization in alternative current only.

# C60 UL489 차단기 (Ring Terminal) 277 V AC

## Ring tongue/ring tongue terminal connection (upstream/downstream)

PB 102035-35



PB 102036-35



PB 102037-35



| Type                                                                                                  | Width in modules<br>0.354 in.<br>(9 mm) | Rating<br>(A) | Cat. no.<br>curve | curve    |
|-------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------|-------------------|----------|
| 1P                                                                                                    |                                         |               |                   |          |
| <div>EZ7969</div>    | 2                                       | 0.5           | MGN61366          | MGN61399 |
|                                                                                                       |                                         | 1             | MGN61367          | MGN61400 |
|                                                                                                       |                                         | 2             | MGN61368          | MGN61401 |
|                                                                                                       |                                         | 3             | MGN61369          | MGN61402 |
|                                                                                                       |                                         | 4             | MGN61370          | MGN61403 |
|                                                                                                       |                                         | 5             | MGN61371          | MGN61404 |
|                                                                                                       |                                         | 6             | MGN61372          | MGN61405 |
|                                                                                                       |                                         | 8             | MGN61373          | MGN61406 |
|                                                                                                       |                                         | 10            | MGN61374          | MGN61407 |
|                                                                                                       |                                         | 15            | MGN61375          | MGN61408 |
|                                                                                                       |                                         | 20            | MGN61376          | MGN61409 |
| 2P                                                                                                    |                                         |               |                   |          |
| <div>EZ7970</div>   | 4                                       | 0.5           | MGN61377          | MGN61410 |
|                                                                                                       |                                         | 1             | MGN61378          | MGN61411 |
|                                                                                                       |                                         | 2             | MGN61379          | MGN61412 |
|                                                                                                       |                                         | 3             | MGN61380          | MGN61413 |
|                                                                                                       |                                         | 4             | MGN61381          | MGN61414 |
|                                                                                                       |                                         | 5             | MGN61382          | MGN61415 |
|                                                                                                       |                                         | 6             | MGN61383          | MGN61416 |
|                                                                                                       |                                         | 8             | MGN61384          | MGN61417 |
|                                                                                                       |                                         | 10            | MGN61385          | MGN61418 |
|                                                                                                       |                                         | 15            | MGN61386          | MGN61419 |
|                                                                                                       |                                         | 20            | MGN61387          | MGN61420 |
| 3P                                                                                                    |                                         |               |                   |          |
| <div>EZ7971</div>  | 6                                       | 0.5           | MGN61388          | MGN61421 |
|                                                                                                       |                                         | 1             | MGN61389          | MGN61422 |
|                                                                                                       |                                         | 2             | MGN61390          | MGN61423 |
|                                                                                                       |                                         | 3             | MGN61391          | MGN61424 |
|                                                                                                       |                                         | 4             | MGN61392          | MGN61425 |
|                                                                                                       |                                         | 5             | MGN61393          | MGN61426 |
|                                                                                                       |                                         | 6             | MGN61394          | MGN61427 |
|                                                                                                       |                                         | 8             | MGN61395          | MGN61428 |
|                                                                                                       |                                         | 10            | MGN61396          | MGN61429 |
|                                                                                                       |                                         | 15            | MGN61397          | MGN61430 |
|                                                                                                       |                                         | 20            | MGN61398          | MGN61431 |

Utilization in alternative current only.