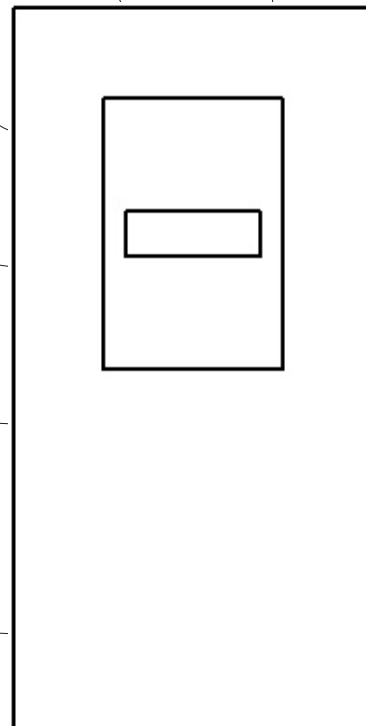
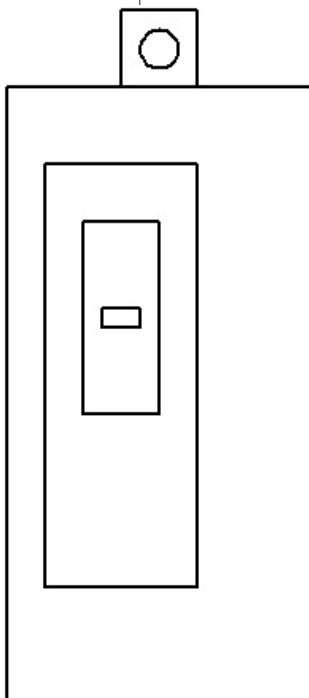
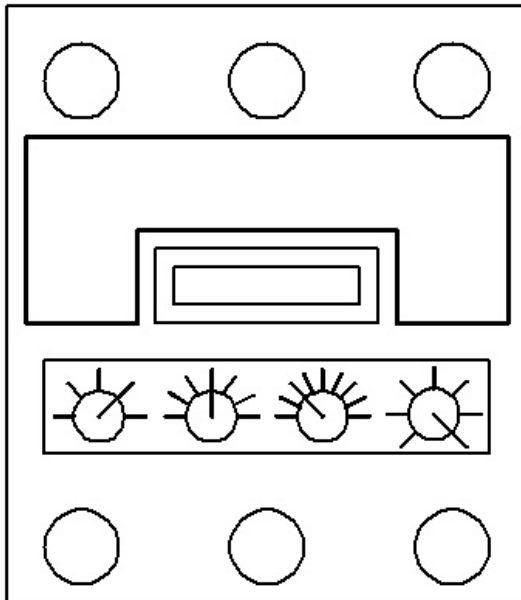




**Underwriters
Laboratories Inc.®**

Marking Guide

**Molded Case Circuit Breakers
600 Volts or Less
April 2002**



*UL has developed the Molded-Case Circuit Breaker Marking Guide to assist AHJs and installers in understanding the meaning and location of markings on MCCBs. These circuit breakers are intended to be installed in accordance with the NEC and their listing. These markings are required by UL 489, and are part of the listing.

Underwriters Laboratories Inc. has developed the **Molded-Case Circuit Breaker Marking Guide** from the requirements in the Ninth Edition of UL 489, the Standard for Safety for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, and its revisions through March 22, 2000. The Guide includes requirements for products under the categories Circuit Breaker Adapters (DHWZ), Accessories (DIHS), Circuit Breaker and Secondary Surge Arresters (DIMV), Circuit Breaker and Transient Voltage Surge Suppressor (DIPJ), Current Limiters (DIRW), Circuit Breakers for Use in Communications Equipment (DITT), Molded-Case Circuit Breakers (DIVQ), Molded Case Circuit Breakers Classified for Mitigating the Effects of Arcing Faults (DIWL), Circuit Breakers With Equipment Ground Fault Protection (DIYA), Fused Circuit Breakers (DIYV), Circuit Breaker and Ground Fault Circuit Interrupters (DKUY), and Circuit Protectors (DLBX).

UL Marking Guides are updated as necessary due to new product development, changes in the National Electrical Code®, or the need for clarification. To confirm the current status of any UL Marking Guide, please consult the Regulators page of the UL Web Site at <http://www.ul.com/regulators/index.html>.

References to the *National Electrical Code*® are to the 2002 Edition.

We welcome any comments or suggestions you may have regarding this edition. Please direct your comments to:

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Guide (CCN) Designation: DKUY

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GENERAL

1. Type Designation—All circuit breakers are marked with their type designation. Normally, this marking also includes a catalog number, because most often the location of additional suffix letters and/or numbers in the catalog number provide additional information on ratings. If the full catalog number is marked, the type designation marking is optional.

2. Manufacturer's Name — All circuit breakers are marked with a name, trademark or other recognized means for identifying the organization responsible for the device. Usually, this is the manufacturer—for other references, the marking guide indicates the manufacturer's name.

3. Voltage Rating — All circuit breakers are marked with a voltage rating, including: 60, 125, 125/250, 160, 250, 500 and 600 volts for dc; and 120, 120/240, 240, 277, 347, 480Y/277, 480, 600Y/347 and 600 volts for ac. If the voltage rating does not include the words “ac” or “dc,” the breaker is rated for both ac and dc voltages. For ac voltage ratings other than 60 Hz, the frequency is marked.

Circuit breakers for use in Communications Equipment may also carry ratings of 65 or 80 Volts dc.

Two-pole independent-trip breakers and single-pole breakers with handle ties that are rated 120/240 V ac have been investigated for use in line-to-line single-phase circuits or line-to-line lighting and appliance branch circuits connected to 3-phase, 4-wire systems, provided the systems have a grounded neutral and the voltage to ground does not exceed 120 V.

Two-pole independent-trip breakers and single-pole breakers with handle ties that are rated 125/250 V dc have been investigated for use in line-to-line connected 3-wire dc circuits supplied from a system with a grounded neutral, where the voltage to ground does not exceed 125 V.

Two-pole independent-trip breakers and single-pole breakers with handle ties that are rated 125/250 V (both ac and dc) have been investigated for use in accordance with either of the above two paragraphs, as applicable.

Two- and three-pole common-trip breakers rated 120/240V ac are intended for use on 1-phase, 3-wire circuits, where the voltage to ground does not exceed 120 V.

Two- and three-pole common-trip breakers rated 125/250 V or 125/250 V dc are intended for use on 1-phase and dc, 3-wire circuits, where the voltage to ground does not exceed 125 V.

Circuit breakers with a single voltage rating are intended for use in circuits where the circuit voltage and the voltage to ground do not exceed the voltage rating of the breaker.

“Slant-rated” breakers with a rating such as 480Y/277 V are intended for use in circuits where the circuit voltage does not exceed the higher of the two voltages and the voltage to ground does not exceed the lower of the two voltages.

Based on the preceding paragraphs, “slant-rated” breakers (120/240, 480Y/277 V, etc., as opposed to 240, 480 V, etc.) are not intended for use on “slant-rated” delta systems. For example, a 3-pole, 120/240 V breaker is not intended for use on a 240/120 V, 3-phase, 4-wire, delta system, because on the high leg, the voltage to neutral is 208 V. In this instance, a 3-pole, 240 V breaker should be used.

4. Ampere Rating — All circuit breakers are marked with a current rating. For breakers rated 100 A or less, this marking is required to be on the handle or the escutcheon area of the breaker. If the marking is placed on the handle of the breaker, the numerical value alone is adequate.

5. Line and Load Identification — A circuit breaker may or may not be marked “Line” and “Load.” If it does not have this marking, it is acceptable for reverse connection. A breaker with interchangeable trip units is marked “Line” and “Load,” unless there is no risk of electric shock when changing the trip unit.

POSITION INDICATION

6. On and Off (Open and Closed) — All circuit breakers are marked to indicate whether they are open or closed. This marking is visible without removing the trim or cover. However, if the breaker is enclosed, it may be necessary to open a hinged cover or door.

7. Trip and Reset — If a circuit breaker handle takes an intermediate position when tripped, the breaker is marked to indicate it is tripped. Instructions for resetting the breaker are also required to be marked. These markings are optional if they already appear on the receiving device, for example the panelboard.

8. Electrical Operation (On and Off) — If the “On” and “Off” markings are not readily visible when an electrical operator is installed, the markings appear on the electrical operator.

9. Electrical Operation (Trip and Reset) — The electrical operator may also indicate the “Tripped” position of the circuit breaker. **INTERCHANGEABLE TRIP UNITS**

10. Manufacturer’s Name — All interchangeable trip units are marked with the manufacturer’s name, trademark or other recognized means for identifying the manufacturer.

11. Ampere Rating (Trip Unit) — All interchangeable trip units are marked with their ampere rating. The numerical value alone is sufficient, if the word “amperes” or an appropriate abbreviation appears on the cover next to the trip unit.

12. Frame Designation — All interchangeable trip units are marked with the frames for which they are intended, unless the instructions provided with the trip units instruct the user on the proper use of the trip units.

13. Magnetic Settings — All interchangeable trip units are marked with the minimum and maximum settings for the adjustable magnetic tripping values.

INTERRUPTING RATINGS

14. Ratings — All circuit breakers with an interrupting rating other than 5000 A are marked with their interrupting rating. If the breaker is not marked with an interrupting rating, the interrupting rating for the breaker is 5000 A. The marking includes the words “Interrupting Rating” or “Current Interrupting Rating” and may include “Maximum RMS Symmetrical,” or an abbreviation. If the interrupting rating includes more than one current and associated voltage rating, all values of voltage and corresponding interrupting rating are marked. If more than one interrupting rating is marked, all ratings appear together. No asymmetrical voltage rating may be marked on the breaker. If the marked interrupting rating of the breaker exceeds the marked withstand rating of the end-use equipment, such as a panelboard, in which the breaker is installed, the interrupting rating of the overall combination is still considered to be the lesser rating marked on the end-use equipment.

TERMINATIONS

15. Cu-Al Wire — All circuit breakers are marked to identify the type of wire for which they are suitable. The marking includes the words “Copper” and/or “Aluminum” or an abbreviation. If the breaker is intended for use with a copper wire only or an aluminum wire only, the marking includes the word “Only.” A breaker intended for use with No. 10-14 AWG solid wire only is marked “No. 10-14 AWG Solid,” or an equivalent wording.

16. Tightening Torque — All circuit breakers are marked with their rated tightening torque for all terminals intended for field wiring. This is a nominal value. If the torque is dependent on wire size, the marking indicates the range of tightening torques for each wire size.

17. Maximum Wire Size — If the terminals of a circuit breaker will not accept the next larger wire size than required for the breaker rating, the breaker or the terminal is marked to indicate the maximum wire size.

18. Multiple Conductor Connectors — If the terminals of a circuit breaker are acceptable for use with multiple connections in one hole, and the breaker is intended for this type of use, the breaker is marked to indicate the proper multiple connections. This is uncommon for breakers—ordinarily, the terminals are suitable for only one wire per hole.

19. 60/75°C Wire — All circuit breakers rated 125 A or less are marked for use with 60° C, 60/75°C or 75°C only wire. This marking indicates the proper wire size for termination in accordance with Table 310.16 of the *NEC*®. It is acceptable to use wire with a higher insulation rating if the ampacity is based on the wire temperature rating marked on the breaker. For breakers rated more than 125 A, the proper wire temperature rating is 75°C and it is optional for the breaker to bear this marking.

20. Separately Shipped Connectors — If the wire connectors are not provided with the circuit breaker when shipped from the manufacturer, the breaker is marked to indicate the proper connectors or connector terminal kit for the breaker. The terminal kit indicates the manufacturer’s name or trademark and proper wire size.

21. Cable Connection Only — A circuit breaker rated more than 4000 A and intended for cable connections only is marked accordingly.

22. Bus Bar Sizes — A circuit breaker intended for use with bus bars other than 1000 A/in.² is marked to indicate the minimum size bus bar to which it should be connected. If not marked, the proper bus bar sizes for termination are based on 1000 A/in.² Typical sizes are:

Circuit Breaker Frame Size, A	Bus Bars per Terminal	
	Number	Size, in.
1600	2	1/4 X 3
2000	2	1/4 X 4
2500	2	1/4 X 5
	or 4	1/4 X 2-1/2
3000	4	1/4 X 4
4000	4	1/4 X 5
5000	6	1/4 X 5
6000	6	1/4 X 6

ADJUSTABLE TRIP

23. Instantaneous Trip — All circuit breakers with an adjustable instantaneous tripping means are marked to indicate at least the minimum and maximum trip settings. This marking can either be in amperes or a percentage of the breaker’s ampere rating. If it is an interchangeable trip unit, the marking may be on the trip unit.

24. Type A and Type B — A Type A adjustable circuit breaker can be repeatedly field adjusted for all changeable characteristics. A Type B adjustable circuit breaker — once set to a particular continuous current rating — cannot be adjusted to a higher value. The Type A breaker is marked with a single ampere rating and percentage, or similar markings, or with current markings for each continuous current adjustment setting. The Type B breaker can be marked with the ampere rating to which it is set. The ampere marking is to be applied by the installer at the time the breaker is set. The notations —Type A and Type B—are not required to be marked on the breaker. They are designations used to determine how to evaluate the breakers.

25. Adjustable Controls — Each control of an adjustable circuit breaker is marked to indicate its function and setting points.

SPECIAL MARKINGS

26. Non-Conducting Enclosure — A circuit breaker not intended for use in a metal enclosure is marked “Suitable for use in a non-conducting enclosure only.”

27. Ventilated Enclosure — A circuit breaker for use in a ventilated enclosure is marked to identify the enclosure or to indicate the proper enclosure size, and location and size of the ventilating openings.

28. 40°C — A thermal-magnetic circuit breaker that is suitable for use in ambients up to 40°C is marked “40°C.” Circuit breakers with electronic type trip units are not affected by the ambient temperature. They must be marked 25°C or 40°C or they may not be marked with an ambient temperature.

29. Current Limiting — A circuit breaker that meets UL requirements for current limiting is marked “Current Limiting.” The breaker is also marked with the I_p current, I^2t let-through and related frequency, or to reference a publication available from the manufacturer with this same information. These let-through current curves indicate the let-through currents versus prospective fault current across the range from the threshold level, where the breaker starts to exhibit current limiting characteristics, to the maximum interrupting rating, with at least one intermediate point also indicated. UL’s definition of a current limiting breaker is one that does not use a fusible element and, when operating within its current limiting range, limits the let-through I^2t to less than the I^2t of a 1/2-cycle wave of the available symmetrical current.

30. Class CTL — Circuit breakers for Class CTL panelboards or assemblies are marked “Class CTL” or “CTL.” A Class CTL breaker, because of its size or configuration in conjunction with the physical means provided in Class CTL panelboards, prevents more circuit breaker poles from being installed than the number for which the assembly is designed and rated. A Class CTL panelboard is a circuit limited lighting and appliance panelboard. Both “half-sized” and “full-sized” breakers may be marked “Class CTL.”

31. “Delta”— A delta breaker is a 3-pole — 3-phase circuit breaker intended to have two poles connected to a bus structure and a third pole isolated, and is marked “For Replacement Use Only.”

32. 2-Pole — 3-Phase Rated — A 2-pole circuit breaker marked “1-Phase — 3-Phase” or “1Ø — 3Ø” may be used on 3-phase, corner-grounded delta circuits, or on single-phase circuits.

33. 3-Pole — 1-Phase Rated — 3-pole circuit breakers are suitable for use on 3-phase systems only, unless marked to indicate use on 1-phase systems, such as, “For 1-phase connections, use two outside poles,” or an equivalent statement. A 3-pole breaker used in place of a 2-pole breaker on a 3-phase system, such as a 2-pole breaker used in a branch circuit that is actually two legs of a 3-phase system, is acceptable without the 3-pole breaker being specifically marked.

34. Multi-Wire Circuit — A multi-pole circuit breaker intended for use in a multi-wire circuit only is marked with a combination voltage rating only, such as 480Y/277 V ac, provided a 3-pole breaker intended for use in a single-phase multi-wire circuit only includes in its marked voltage rating the term “1-phase” or an equivalent.

35. DC Rated 3-Pole — A 3-pole circuit breaker rated 250 V dc or less is acceptable for use in DC voltage systems, when marked to indicate its DC voltage rating and it is necessary to use two of the poles to control the circuit. Three-pole breakers rated more than 250 V dc are intended to be connected with all three poles in series and are marked with a wiring diagram indicating that all three poles should be wired in series.

36. 100 Percent Continuous Rated — Unless otherwise marked for continuous use at 100 percent of its current rating, a circuit breaker is intended for use at no more than 80 percent of its rated current where in normal operation the load will continue for three hours or more. A breaker with a frame size of 250 A or more, or a multi-pole breaker of any current rating greater than 250 V, may be marked to indicate it is suitable for continuous use at 100 percent of its current rating. The marking is “Suitable for continuous operation at 100 percent of rating only if used in a circuitbreaker enclosure Type ____ or in a cubicle space ____ by ____ by ____ inches” or an equivalent statement. This type of breaker may also be marked to indicate it is to be used with wire sized for a 75°C conductor with 90°C insulation and used with 90°C wire connectors.

37. “SWD” — A circuit breaker rated 15 or 20 A, 347 V ac or less, may be marked “SWD” and is suitable for switching fluorescent lighting loads on a regular basis.

38. Non-Time Delay — A circuit breaker rated 30 A or less, 250 V or less, may be marked “Non-Time Delay” or an equivalent statement, signifying that the breaker will trip in less than 12 seconds when carrying 200 percent of its rated current. The word “instantaneous” is not used.

39. Independent Trip — A 2-pole circuit breaker that does not have an internal common trip feature is marked “Independent Trip” or “No Common Trip.” An external handle tie alone does not qualify as a common trip mechanism — a breaker of this type is marked to indicate it is an independent trip breaker.

40. Special Characteristics — If the proper operation of a circuit breaker depends on a special characteristic, such as polarity or position, the breaker is marked to indicate this characteristic. If this includes a barrier, shield or similar member, the breaker is marked with all the necessary information. If it is necessary to replace a part, such as a barrier or shield, the marking also includes replacement instructions.

41. For Replacement Not CTL — The marking “For replacement use only not CTL assemblies” appears on breakers that do not have means to prevent their installation in Class CTL assemblies. These breakers are intended for replacement in older assemblies still in service, which pre-dates the Class CTL requirements for circuit breakers and panelboards.

42. Special Purpose Not General — Circuit breakers marked “Special purpose not for general use” have special features limiting their suitability to specific applications. Instructions are provided by the manufacturer detailing these applications.

43. HACR Type — A circuit breaker that has been found acceptable for use in heating, air-conditioning and refrigeration equipment comprising group motor installations is marked “HACR Type” in conjunction with the UL Mark. This marking alone, however, does not indicate the acceptability of the circuit breaker in these installations. For an acceptable installation, the end-use equipment must be marked to indicate that “HACR Type” circuit breakers may be used for branch circuit overcurrent protection.

44. “HID” — A circuit breaker rated 50 A maximum, 480 V or less, and intended to switch high intensity discharge (HID) lighting loads on a regular basis is marked “HID.”

44A. Remotely Operated Circuit Breaker—A circuit breaker that can be opened remotely, as by a utility, for purposes of shedding loads. These circuit breakers are marked “Remotely Operated” and are provided with a separate label marked: “Remotely-operated circuit breaker installed in this equipment” with instructions for attaching the label to the equipment.

FUSED CIRCUIT BREAKERS

45. Line and Load Identification — All fused circuit breakers are marked “Line” and “Load.” The “Load” marking is on the same side of the contacts as the fuses or high-fault protectors.

46. Identification of Fuses — All fused circuit breakers are marked to indicate the fuses or high-fault protectors with which they are to be used.

47. No Open Fuse Tripping — Any fused circuit breaker that does not trip automatically on clearing of one or more of the fuses or high-fault protectors is marked “Open Fuse Tripping Not Provided,” or an equivalent statement.

48. Other — These circuit breakers are marked as outlined for all breakers. See Items 1-4, 6-29, 32-36, 40, 64, 65 and 67.

CIRCUIT BREAKER/GROUND FAULT CIRCUIT INTERRUPTER

49. “Test” Function — The “Test” switch on a circuit breaker and ground fault circuit interrupter (CB/GFCI) is marked to identify its purpose. When the test switch is depressed, a current simulating a ground fault is caused to flow and this should cause the internal mechanism to function to trip the breaker.

50. “Class A” Marking — All CB/GFCIs are marked “Class A,” indicating that the CB/GFCI has a ground fault trip threshold of 6mA maximum.

51. Instructions — All CB/GFCIs are provided with: instructions for the installer, including instructions on the proper use of the supervisory (test) circuit; a hang tag or pressure-sensitive adhesive backed label with space for at least 180 entries; and instructions to place the label in a conspicuous location and test the device at least once a month. Also included in a marking on the CB/GFCI, or in literature supplied with the CB/GFCI, is information indicating that the user is not protected if contact is made with more than one circuit conductor.

52. Terminal Identification — All but one of a CB/GFCI’s terminals are identified. The terminals to the grounded conductor are white or grey; the terminals for the ungrounded conductors are a contrasting color. The color green cannot be used.

53. Other — These circuit breakers are also marked as outlined for all breakers. See Items 1-7, 14-20, 28, 30, 37-41, 64, 65 and 67.

CIRCUIT BREAKER/EQUIPMENT GROUND FAULT PROTECTION

54. “Test” Function — The “Test” button on a circuit breaker with equipment ground fault protection (CB/EGFP) is marked to identify its purpose. When the test button is depressed, a current simulating a ground fault is caused to flow and this should cause the internal mechanism to function to trip the breaker.

55. Trip Level Marking — All CB/EGFPs are marked to indicate the ground fault trip threshold of the device, in milliamperes.

56. Instructions — All CB/EGFPs are provided with instructions for the installer.

57. Terminal Identification — All but one of a CB/EGFPs terminals are identified. The terminals to the grounded conductor are white or grey; the terminals for ungrounded conductors are a contrasting color. The color green cannot be used.

58. Other — These circuit breakers are also marked as outlined for all breakers. See Items 1-7, 14-20, 28, 30, 37-41, 64, 65 and 67.

CIRCUIT BREAKER/SECONDARY SURGE ARRESTERS

59. Surge Voltage Rating — These devices are marked with a surge arrester voltage rating.

60. Other — These circuit breakers are also marked as outlined for all circuit breakers. See Items 1-7, 14-20, 28, 30, and 39-41.

CIRCUIT BREAKER/TRANSIENT VOLTAGE SURGE SUPPRESSOR

61. Suppression Voltage Rating — These devices are marked with a suppression voltage rating.

62. Other — These circuit breakers are also marked as outlined for all circuit breakers. See Items 1-7, 14-20, 28, 30, and 39-41.

CURRENT LIMITERS (ACCESSORY HIGH-FAULT PROTECTORS)

63. Type Designation — All current limiters are marked with their Type designation.

64. Manufacturer's Name — All current limiters are marked with the manufacturer's name, trademark or other recognized means for identifying the manufacturer.

65. Terminations — All current limiters are marked with their wire termination information. See Items 15-22.

66. Circuit Breaker — All current limiters are marked to indicate circuit breakers with which they are to be used.

67. Interrupting Rating — All current limiters are marked to indicate their interrupting rating for which the current limiter and corresponding circuit breaker were investigated. The marking includes the words "Interrupting Rating" or "Current Interrupting Rating" and may include "Maximum RMS Symmetrical," or an abbreviation. If the interrupting rating includes more than one current and associated voltage rating, all values of voltage and corresponding interrupting rating are marked. Where more than one interrupting rating is marked, all ratings appear together.

ACCESSORIES

68. Ratings — All circuit breakers provided with accessories are marked to identify the accessories installed. This includes the accessory type, electrical ratings and proper connections, if the connections are not obvious. The electrical ratings include the voltage rating, and ac or the frequency in Hertz, dc, or both, as appropriate for all accessories. For alarm and auxiliary switches, the marking also includes either an ampere or pilot-duty rating. For shunt trip accessories, over- and under-voltage trip accessories and electrical operators, the marking also includes either an ampere or VA rating.

69. Shunt Trip — A circuit breaker provided with a shunt trip accessory intended for use with ground fault sensing and relaying equipment is marked to indicate the specific equipment with which it is to be used. As an option, it may be marked to indicate the voltage and frequency, or dc, of the tripping circuit; the rated tripping current at rated voltage; and "Suitable for Ground Fault Protection when combined with Class 1 (or manufacturer and catalog number) Ground Fault Sensing and Relaying Equipment," or an equivalent statement.

70. Separately Shipped — If a circuit breaker and accessory are shipped separately, the accessory is marked to indicate the manufacturer's name or trademark, catalog number and electrical ratings. Where there is no space for a permanent marking on the accessory, it is marked with some type of identification that references a removable tag or other type of alternate marking. Instructions are furnished with the accessory indicating the specific breakers with which it is to be used. A marking label indicating the installed accessory and its connections is furnished with the accessory, along with instructions indicating that the label should be attached to the breaker when installed. Installation and wiring instructions are also provided unless the proper installation is obvious.

71. External Dropping Resistor — A circuit breaker is marked to indicate when an external dropping resistor is intended to be used between the line terminals of the breaker and the line terminals of an under-voltage trip device. The marking also includes the manufacturer's name, catalog number and the resistor's electrical ratings.

CIRCUIT BREAKER ADAPTERS

72. Type Designation — All circuit breaker adapters are marked with their Type designation.

73. Manufacturer's Name — All circuit breaker adapters are marked with the manufacturer's name, trade mark or other recognized means for identifying the manufacturer.

74. Terminations — All circuit breaker adapters are marked with their wire termination information. See Items 15-22.

75. Circuit Breaker — All circuit breaker adapters are marked to indicate the breakers with which they are to be used.

76. Instructions — All circuit breaker adapters are provided with installation instructions to guide the installer. A marking label indicating the adapter that has been installed is also furnished, along with instructions that the label should be attached to the breaker when installed.

CIRCUIT PROTECTORS

Circuit protectors are designed for installation in standard Edison base fuseholders and intended to provide overcurrent protection for services and branch circuits. They are not provided with manual "On" and "Off" switches, but do have a trip-free manual reset to reclose the circuit after automatic opening from overload or short circuit. They are suitable for use on circuits where the available fault current does not exceed 5000 A RMS symmetrical.

77. Manufacturer's Name — All circuit protectors are marked with the manufacturer's name, trademark or other recognized means for identifying the manufacturer.

78. Voltage Rating — All circuit protectors are marked with a voltage rating.

79. Ampere Rating — All circuit protectors are marked with a current rating.

80. Reset Instructions — All circuit protectors are marked with instructions for resetting the protector after it has tripped.

CIRCUIT BREAKERS FOR USE IN COMMUNICATIONS EQUIPMENT

81. Ambient Operating Temperature — Some circuit breakers for use in communications equipment have been investigated for use in ambient air at temperatures greater than 40°C. These circuit breakers are marked with either the intended operating ambient temperature or a range of temperatures.

82. Wire Insulation Temperature Rating — Circuit breakers for use in communications equipment that have been investigated for use in ambient temperatures greater than 40°C and that require use with wire having insulation temperature ratings greater than 75°C are marked with the temperature rating of the wire that should be connected to it. The ampacity of the wire should be as specified for 75°C.

83. Same Polarity — Circuit breakers for use in communications equipment that have accessories are marked “SAME POLARITY” when that is required to maintain spacings between the primary circuit and the accessory circuit.

84. Other — These circuit breakers are also marked as outlined for breakers. See items 1-7, 10, 14-19, 36 and 38.

CIRCUIT BREAKER CLASSIFIED FOR MITIGATING THE EFFECTS OF ARCING FAULTS

85. Instructions — Circuit breakers also Classified for mitigating the effects of arcing faults are provided with installation instructions that tell the user the proper method of installing the device.

86. Other — These circuit breakers are also marked as outlined for all breakers. See items 1-7, 10, 14-19, 28, 30 and 37-44.

MOLDED CASE CIRCUIT BREAKERS ALSO LISTED AS BRANCH/FEEDER TYPE ARC FAULT CIRCUIT INTERRUPTERS

87. Device Identifier — These devices are marked with words “Branch/Feeder Arc-Fault Circuit Interrupter” or “Branch/Feeder AFCI” where visible with a dead-front removed while the device is installed so that the device will not be mistaken for a circuit breaker and GFCI.

88. “TEST” Function — The “TEST” switch on an arc-fault circuit interrupter is marked to identify its purpose. When the test switch is depressed, a signal that simulates the output of the arc detection circuitry is caused to flow and this should cause the mechanism to function to trip the breaker.

89. Instructions — All arc-fault circuit interrupters are provided with instructions for the installer and user, including wiring instructions, correct operation and test instructions.

90. Other — These devices are also marked as outlined for all breakers. See 1-7, 10, 14-19, 28, 30 and 37-44.

LOCATION

General — All circuit breaker markings are assigned a location code indicating where a marking is to be applied on the breaker. The location codes are assigned a letter A through K, with A being the highest order and K the lowest. At the manufacturer's option, a higher order location code may be used for a marking.

Location Codes — The location codes are:

- A. The marking is visible without removing the trim or cover.
- B. The marking is visible without disassembling the device, when the trim or enclosure cover is removed, and may be visible with the trim or cover in place.
- C. The marking may be on any convenient location except the rear of the breaker.
- D. The marking need only be visible after removal of the CB frame cover, or the equivalent.
- E. The "TRIPPED" or "RESET" markings are not required on the breaker if the receiving device is so marked.
- F. For electrically-operated breakers, the "ON" and "OFF" markings are not required on the breaker if the electrical operator is so marked.
- G. The "part replacement" marking does not need to be visible when the removable part is installed.
- H. The marking is visible when the wire connector is in place.
- I. The fuse or protector identification is to be visible when the cover over the fuse or protector compartment is removed.
- J. The marking or information may be shipped with the breaker.
- K. For breakers 1-1/2 inches wide per pole or less, the marking may be located at any convenient location except the rear of the breaker.

CIRCUIT BREAKER MARKINGS

The following gives the marking and associated location category.

General

Type Designation	B
Manufacturer's Name	B
Voltage Rating	B
Ampere Rating (more than 100 A)	B
Ampere Rating (100 A or less)	A
Line and Load Identification	B

Position Indication

On and Off (Open and Closed)	A
Trip and Reset	B, E
Electrical Operation (On and Off)	B, F
Electrical Operation (Trip and Reset)	B, F

Manufacturer's Name	D
Ampere Rating	B
Frame Designation	D
Magnetic Settings	D

Interrupting Ratings

Ratings	B, K
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Terminations

Terminations Cu-Al Wire	B
Tightening Torque	B, K
Maximum Wire Size	C, H
Multiple Conductor Connectors	C
60/75°C Wire	B, K
Separately Shipped Connectors	C
Cable Connection Only	B
Bus Bar Sizes	B

Adjustable Trip

Instantaneous Trip	D
Adjustable Controls	B

Special Markings

Non-Conducting Enclosures	C
Ventilated Enclosure	B
40°C	C
Current Limiting	C
Class CTL	C
“Delta”— Replacement Use Only	C
2-Pole — 3-Phase Rated	B
3-Pole — 1-Phase Rated	B
Multi-Wire Circuit	C
DC Rated 3-Pole	B
100 Percent Continuous Rated	B, C
“SWD”	B
Non-Time Delay	C
Independent Trip	B
Special Characteristics	C, G
For Replacement Not CTL	B
Special Purpose Not General	B
HACR Type	C
“HID”	B
Remotely Operated Circuit Breaker	B, K

Fused Circuit Breakers

Line and Load Identification	B
Identification of Fuses	I
No Open Fuse Tripping	B
Other	

Circuit Breaker/Ground Fault Circuit Interrupter

“Test” Function	A
“Class A” Marking	C
Instructions	J
Terminal Identification	C, H
Other	

Circuit Breaker/Equipment Ground Fault Protection

“Test” Function	A
Trip Level Marking	A
Instructions	J
Terminal Identification	C, H
Other	

Circuit Breaker/Secondary Surge Arresters

Surge Voltage Rating	B
Other	

Circuit Breaker/Transient Voltage Surge Suppressor

Suppression Voltage Rating	B
Other	

Current Limiters

Type Designation	B
Manufacturer’s Name	B
Terminations	B
Circuit Breaker	B
Interrupting Rating	B

Accessories

Ratings	C
Shunt Trip	C
Separately Shipped	C
External Dropping Resistor	C

Circuit Breaker Adapters

Type Designation	C
Manufacturer’s Name	C
Terminations	C
Circuit Breaker	C
Instruction	J

Circuit Protectors

Manufacturer’s Name B
Voltage Rating B
Ampere Rating B
Reset Instructions B

CIRCUIT BREAKERS FOR USE IN COMMUNICATIONS EQUIPMENT

Ambient Operating Temperature B
Wire Insulation Temperature Rating C
Same Polarity C
Other

CIRCUIT BREAKER CLASSIFIED FOR MITIGATING THE EFFECTS OF ARCING FAULTS

Instructions J
Other

**MOLDED CASE CIRCUIT BREAKERS ALSO LISTED AS BRANCH/FEEDER TYPE ARC
FAULT CIRCUIT INTERRUPTERS**

Device Identifier B
“TEST” Function A
Instructions J
Other