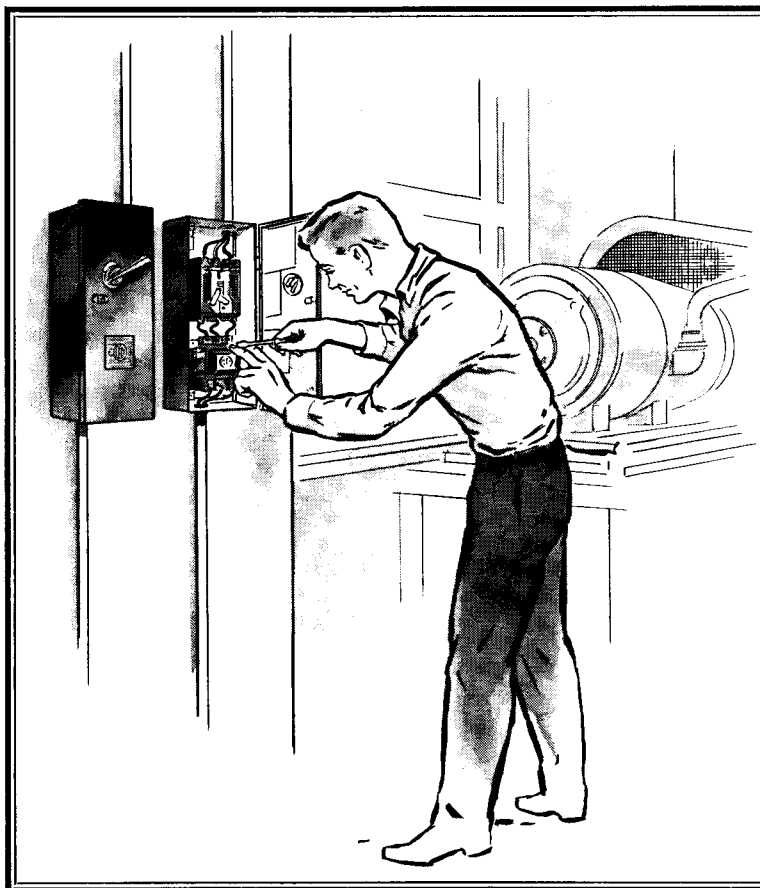




## SPECIAL-PURPOSE CIRCUIT BREAKERS DESCRIPTION



I-T-E manufactures and stocks a number of special-purpose circuit breakers which are described by catalog number.

In addition, there are hundreds of special adaptations, already designed, which can be produced to your order. A summary of these types of adaptations is provided for your guidance.

Further, I-T-E will be glad to quote prices and delivery for the furnishing of new designs on a contract basis. The Small Air Circuit Breaker Division maintains a large engineering and testing staff for this purpose. Special calibrations and mechanical arrangements can be provided.

Please contact your local I-T-E Distributor or Sales Office for information about existing special designs, as well as your needs for new designs.

### EXISTING SPECIAL-PURPOSE BREAKER DESIGNS

#### ETI (Magnetic Trip Only) Breakers

ETI circuit breakers are similar to standard ET® breakers, except that the thermal time-delay overcurrent elements are omitted. These breakers are recommended for short circuit protection of individual motor and resistance welder circuits. Where available fault currents exceed the interrupting rating of standard ETI breakers, current-limiting ETI Cordon® breakers should be used. ETI breakers are available in most ET and ET-C frame sizes. (See Section 2.5.5, Page 1.)

#### ETM (Marine) Breakers

ETM circuit breakers are similar to standard EQ® and ET breakers except that the thermal time-delay elements are calibrated for operation in an ambient temperature of 50°C (122F). They are used to meet American Bureau of

Shipping Standards (A. B. S.) and AIEE-45 specifications governing marine applications. These breakers are not shock-proof and should not be confused with ETN (Navy) breakers described below. To order ETM breakers at no additional charge, designate "M" in place of "B" in standard EQ and ET breaker catalog number, or "W" in place of "T" when ordering ET trip units only. (See Sections 2.1.5 and 2.2.5.)

#### ETN (Navy) Breakers

ETN circuit breakers are manufactured to meet United States Navy specifications for shock-proof circuit breakers. The tripping characteristics and physical dimensions of ETN breakers differ from those of commercial breakers. For full information, refer to Product Catalog Section 18.1 (formerly Section 3400).



## SPECIAL-PURPOSE CIRCUIT BREAKERS

### DESCRIPTION

#### EXISTING SPECIAL-PURPOSE LOADCENTER BREAKER DESIGNS

##### Switching Neutral (Gasoline Station) Breakers

Switching neutral circuit breakers consist of one automatic (thermal-magnetic) pole and one switching-only pole. They are available in EQ®-P and EQ-B 15- and 20-ampere ratings for applications requiring the protection of circuits to or through a dispensing pump or island in gasoline service stations. They meet the National Electric Code requirements for such an application, and are listed by Underwriters' Laboratories, Inc. (See Section 2.1.5, Pages 1 and 2.)

##### Water Heater Breakers

These circuit breakers are used for water heater applications where the breaker is physically located in the main loadcenter or panel, but is electrically connected to the "off-peak" service. They consist of two automatic (thermal-magnetic) poles and a third pole that is used as a housing-only for the "off-peak" electrical line connections. They

are available in EQ-P 15-, 20- and 30-ampere ratings, and are listed by Underwriters' Laboratories, Inc. (See Section 2.1.5, Page 1.)

##### Delta Breakers

Delta circuit breakers are used to obtain a three-phase circuit from a conventional single-phase load center for applications such as central air conditioning and other three-phase motor loads. Available in EQ-P 15-, 20-, 30- and 40-ampere ratings, these breakers consist of three automatic (thermal-magnetic) poles, one of which is isolated from the bus stab and is energized by a separate lead from the three-phase source through a fourth pole housing-only; thus, these breakers require four pole spaces. They are listed by Underwriters' Laboratories, Inc. (See Section 2.1.5, Page 1.)

#### APPLICATIONS FOR WHICH I-T-E HAS A SIGNIFICANT NUMBER OF SPECIAL ADAPTATIONS PRESENTLY DESIGNED

##### LOW-AMPERE EQ-L BREAKERS

EQ-L circuit breakers are similar to standard EQ-B breakers except for lower continuous current calibrations, from 1 through 12 amperes. These breakers are available in standard time-delay or instant-trip construction and provide protection for low ampere circuits commonly found associated with electronic components. (See Section 2.5.5, Page 3.)

##### FIELD DISCHARGE BREAKERS

Field discharge circuit breakers are available for certain applications requiring one pole of the breaker to be open when the breaker is normally closed, and closed when the breaker is normally open. They are furnished in three pole frames, the outside left pole being arranged to close when the center and right hand poles are opened, and open when the center and right hand poles are closed. The thermal-magnetic trip is omitted from the left pole, since it does not operate the trip mechanism when the breaker is normally open. Overload protection in the remaining poles is optional.

##### TWO-PHASE, THREE-WIRE SERVICE BREAKERS

Three-pole ET® circuit breakers for 2-phase, 3-wire serv-

ice are available with the center poles calibrated at 1.414 times the rating of the two outside poles.

##### TWO-PHASE, FIVE-WIRE SERVICE BREAKERS

Four-pole EQ-B circuit breakers are available for 2-phase, 5-wire service applications, in 15-100 ampere ratings.

##### SPECIAL TIME-DELAY BREAKERS

Circuit breakers providing a predetermined time delay of several cycles are available. These breakers are designed to allow time for "downstream" breakers of lower continuous current ratings to clear a fault without tripping the "upstream" breaker having the higher continuous current rating. This selectivity is obtained by incorporating a mechanical inertia-type time delay element in the trip mechanism of the larger (or "upstream") breaker.

##### 400-CYCLE BREAKERS

Circuit breakers calibrated for use on 400-cycle alternating current are available. (Special calibration is not required for 400-cycle operation of one-, two- or three-pole EQ®-P, EQ-B, E-, EH- or EF-frame breakers.)