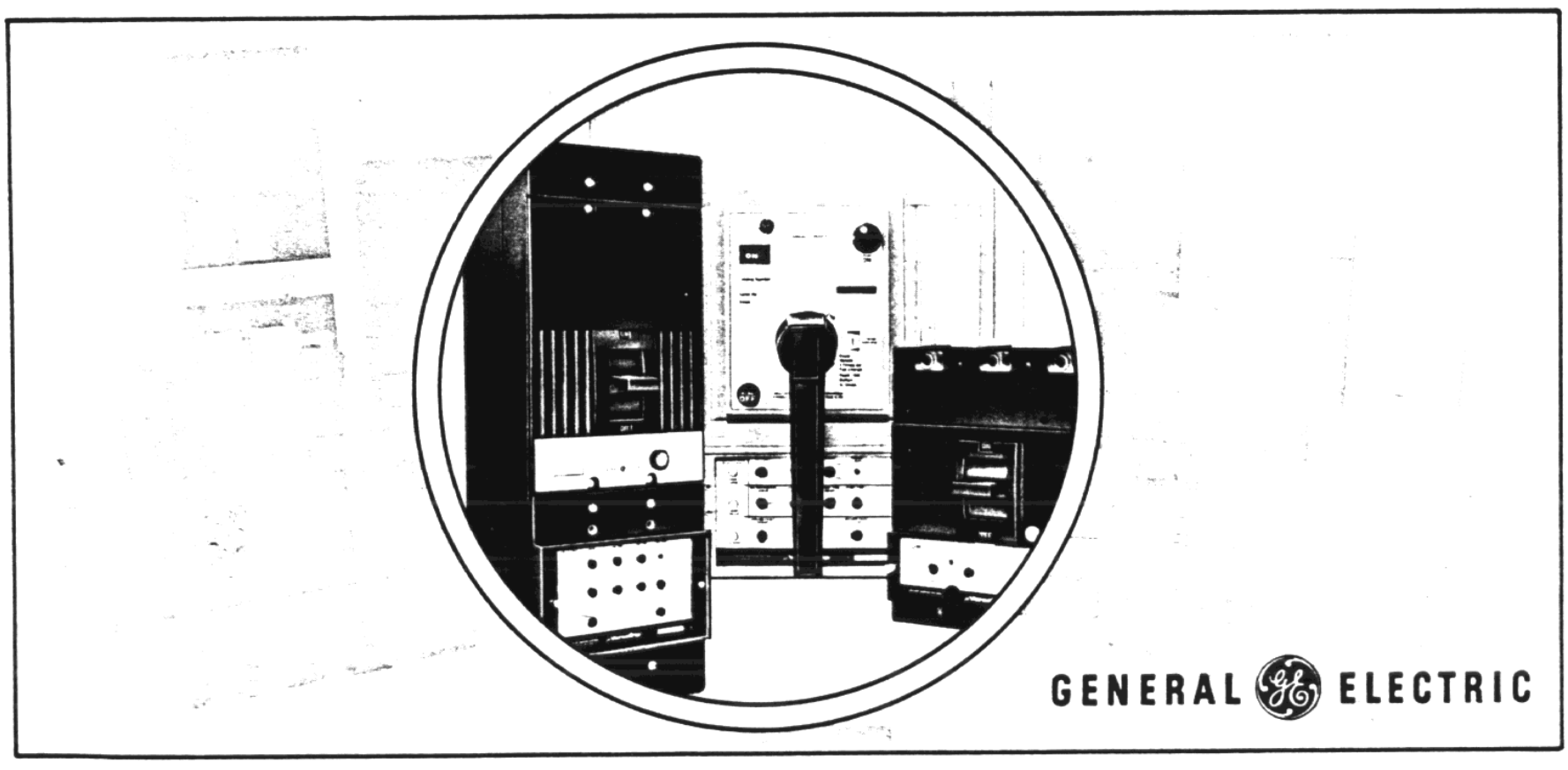
GEA-10665

Industrial Circuit Breakers



GENERAL ELECTRIC

INTRODUCING...

Micro VersaTrip

- J 600 Frame
- K 1200 Frame
- R 2000 — R 4000 Frames
- Nine adjustable function solid state trips for maximum versatility

or

- Four function solid state trips

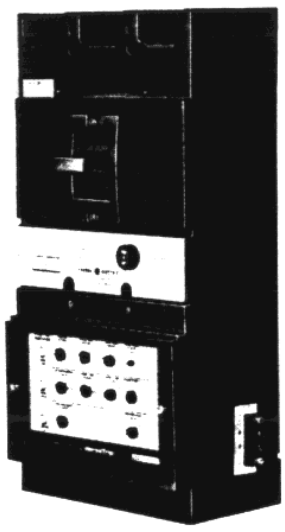
and also introducing . . .

POWER-BREAK+

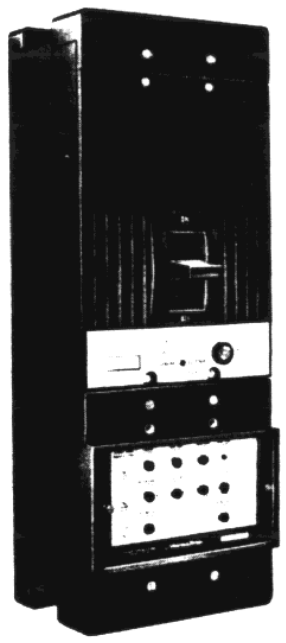
(Publication GEA-10666)

Micro VersaTrip 9

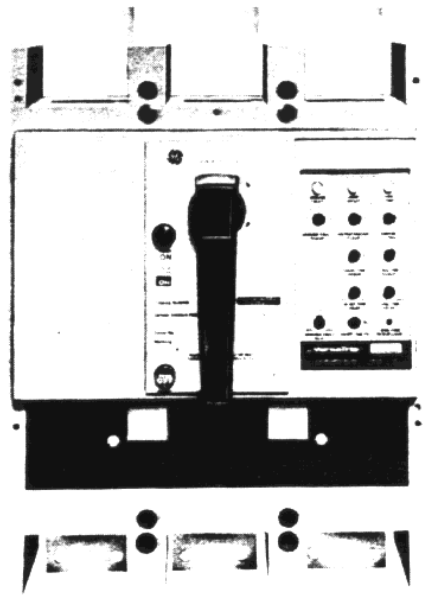
NINE TIME-CURRENT CHARACTERISTICS



J600
Ampere Frame



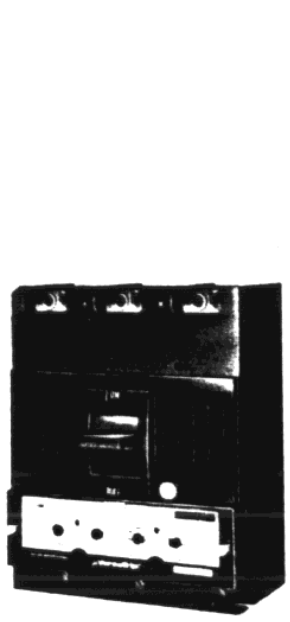
K1200
Ampere Frame



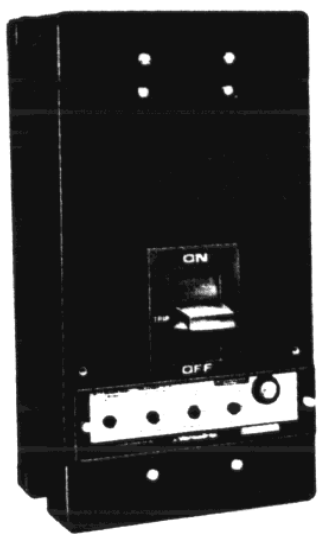
R2000 to 4000
Ampere Frames

Micro VersaTrip 4

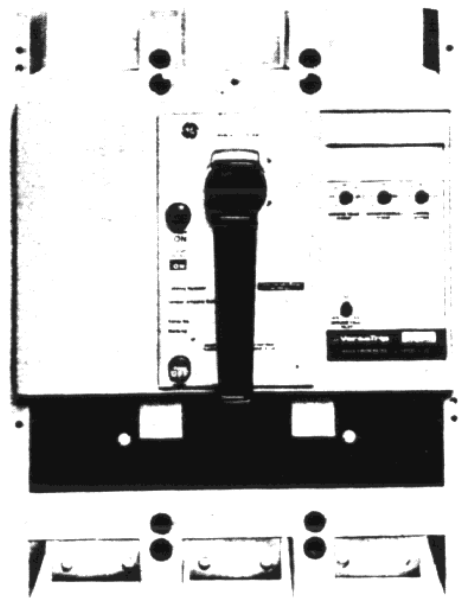
FOUR TIME-CURRENT CHARACTERISTICS



J600
Ampere Frame



K1200
Ampere Frame



R2000 to 4000
Ampere Frames

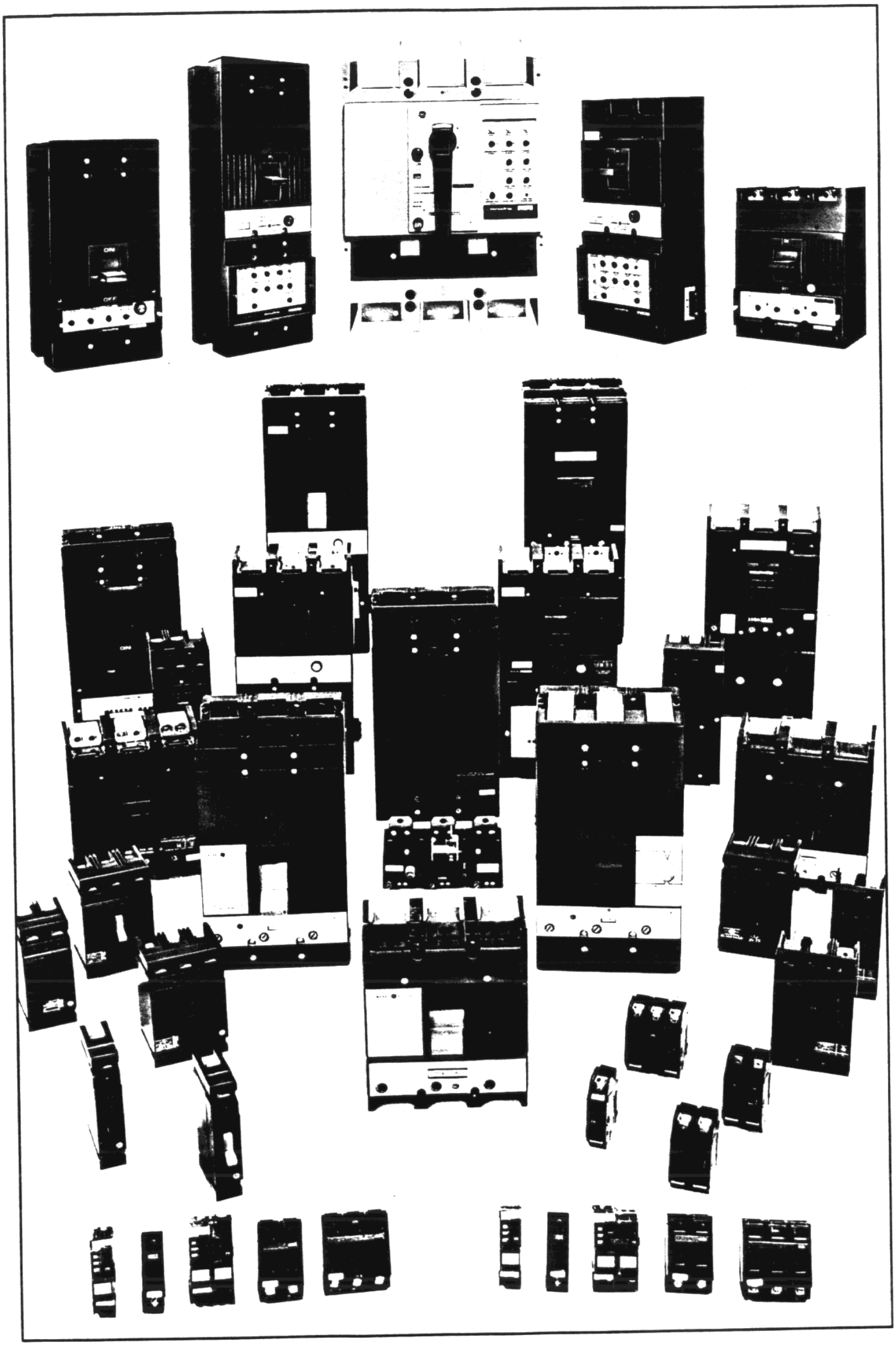

ON
OFF

Table Of Contents

Quick Selection Guide

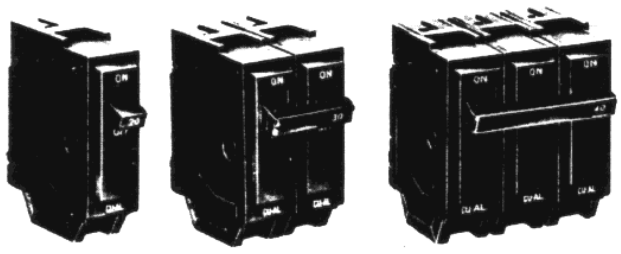
Circuit Breakers by Amperes
250 Volts Maximum

125 AMPERES MAXIMUM RATING

Q LINE

Types THQL, THQAL, THQB, THQC, THHQL, THHQAL, THHQB, THHQC, TXQL, TXQB, TXQC—

5-125 Amperes, 1-, 2- and 3-poles



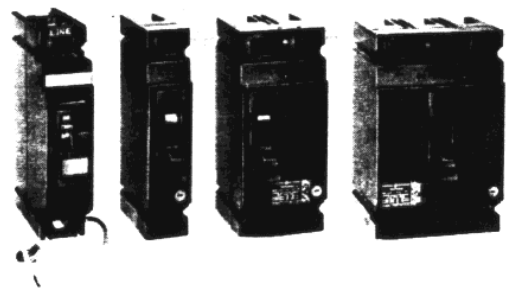
- Internal Common Trip—All multipole breakers incorporates internal common trip bar to provide instant power removal under overload and short circuit conditions.
- Plug in
- Low tab bus connected
- Line and load lugs
- UL File E11592

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts Ac	Amps IC	Type
120/240	10,000	THQL, THQAL, THQC, THQB
120/240, 240	22,000	THHQL, THHQAL, THHQB, THHQC
120/240, 240	65,000	TXQL, TXQC, TXQB
240	10,000	THQL, THQC, THQB

E LINE

Types TE, TEB—10-100 Amperes, 1-, 2- and 3-poles



- Line bus connected
- Line and load lugs
- UL File E11592 or E51075 for GFCI

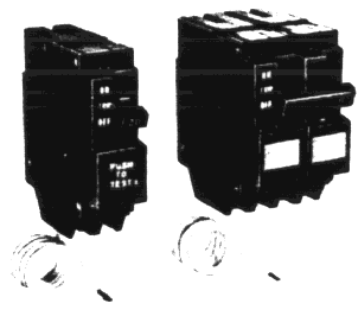
INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts Ac	Amps IC	Type
120	5,000	TE
120	7,500	TE
120	10,000	TE
240	10,000	TEB

30 AMPERES MAXIMUM RATING

Q LINE

Types THQL, THQB, THQC—15-30 Amperes, 1- and 2-poles. Ground Fault Circuit Interrupters



- Plug-In
- Bolt-On
- Lug-lug
- 1″ Module
- UL File E51075

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts Ac	Amps IC	Type
120	10,000	THQL, THQB, THQC
120	22,000	THHQL, THHQB
120/240	10,000	THQL, THQB

Quick Selection Guide

Circuit Breakers by Amperes

250 Volts Maximum

225 AMPERES MAXIMUM RATING

Q LINE

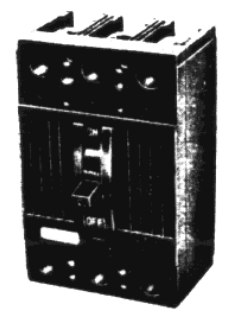
Types TQDL, THQDL—125-225 Amperes, 2- and 3-poles

- 2″ and 3″ Module
- Plug in
- UL File E11592

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts Ac	Amps IC	Type
120/240	10,000	TQDL
208-240	10,000	TQDL
208-240	22,000	THQDL

Types TQD, THQD—100-225 Amperes, 2- and 3-poles



- Line bus connected
- Line and load lugs
- UL File E11592

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts Ac	Amps IC	Type
120, 240	10,000	TQD
120, 240	22,000	THQD
208–240	10,000	TQD
208–240	22,000	THQD

400 AMPERES MAXIMUM RATING

J 400 LINE

Type TJD—250-400 Amperes, 2- and 3-poles

- Line bus connected
- Line and load lugs
- UL File E11592

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts	Amps IC	Type
120 Ac	22,000	TJD
240 Ac	22,000	TJD
125 Dc	10,000	TJD
250 Dc	10,000	TJD

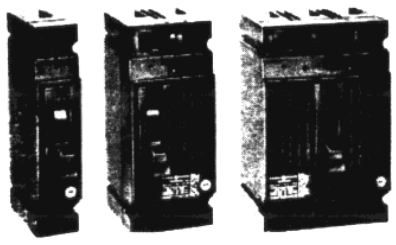
Quick Selection Guide

Circuit Breakers By Ampere
600 Volts Maximum

150 AMPERES MAXIMUM RATING

E 150 LINE

Types TED, THED—10-150 Amperes, 1-, 2- and 3-poles
Type TEC—3-150 Amperes, 2- and 3-poles



- Bus connected
- Line and load lugs
- UL File E11592

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts Ac	Type TED	Type THED	Type TEC
	Therm-Mag	Therm-Mag	Mag Only
120	18,000	65,000	10,000
240	18,000	65,000	10,000
277	14,000	65,000	.....
460	14,000	25,000	.....
480	14,000	25,000	10,000
575	14,000	18,000	10,000
600	14,000	18,000	10,000

TRI-BREAK® LINE

Type TB1—15-150 Amperes, 2- and 3-poles

- Bus connected
- Line and load lugs
- UL File E42263

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts	Therm-Mag-Fuse	Type
120–600 Ac 24–250 Dc	200,000 Consult Factory	TB1 TB1

225 AMPERES MAXIMUM RATING

F 225 LINE

Types TFJ, TFK, THFK—70-225 Amperes, 2- and 3-poles

- Bus connected
- Line and load lugs
- UL File E11592

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts	Type TFJ	Type TFK	Type THFK
	Therm-Mag		
120 Ac	25,000	25,000	65,000
240 Ac	25,000	25,000	65,000
460 Ac	22,000	22,000	25,000
480 Ac	22,000	22,000	25,000
575 Ac	22,000	22,000	22,000
600 Ac	22,000	22,000	22,000
125 Dc	10,000	10,000	20,000
250 Dc	10,000	10,000	20,000

TRI-BREAK LINE

Type TB4—125-225 Amperes, 2- and 3-poles

- Bus connected
- Line and load lugs
- UL File E42263

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts	Therm-Mag-Fuse	Type
120–600 Ac 24–250 Dc	200,000 Consult Factory	TB4 TB4

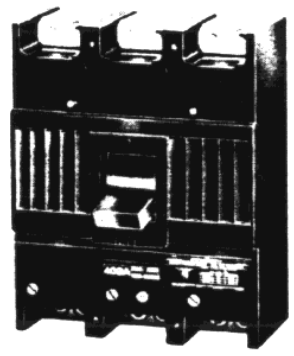
Quick Selection Guide

Circuit Breakers by Amperes
600 Volts Maximum

400 AMPERES MAXIMUM RATING

J 400 LINE

Types TJJ, TJC, TJK, THJK—125-400 Amperes, 2- and 3-poles



- Bus connected
- Line and load lugs
- UL File E11592

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts	Type TJJ	Type TJC	Type TJK	Type THJK
	Therm-Mag	Mag Only	Therm-Mag	
120 Ac	42,000	.....	42,000	65,000
240 Ac	42,000	42,000	42,000	65,000
460 Ac	30,000	.....	30,000	35,000
480 Ac	30,000	30,000	30,000	35,000
575 Ac	22,000	.....	22,000	25,000
600 Ac	22,000	22,000	22,000	25,000
125 Dc	10,000	.....	10,000	20,000
250 Dc	10,000	.....	10,000	20,000

TRI-BREAK® LINE

Type TB4—250-400 Amperes, 2- and 3-poles

- Bus connected
- Line and load lugs
- UL File E42263

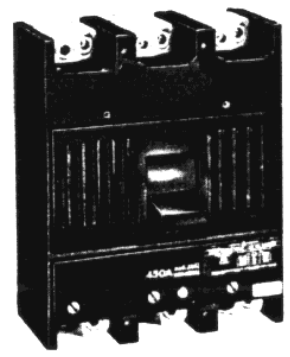
INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts	Therm-Mag-Fuse	Type
120–600 Ac	200,000	TB4
24–250 Dc	Consult Factory	TB4

600 AMPERES MAXIMUM RATING

J 600 LINE

Types TJK, TJC, THJK—250-600 Amperes, 2- and 3-poles



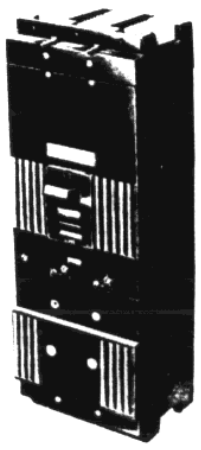
- Bus connected
- Line and load lugs
- UL File E11592

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts	Type TJC	Type TJK	Type TJS	Type THJK
	Mag Only	Therm-Mag	Solid State	Therm-Mag
120 Ac	42,000	42,000	42,000	65,000
240 Ac	42,000	42,000	42,000	65,000
460 Ac	30,000	30,000	30,000	35,000
480 Ac	30,000	30,000	30,000	35,000
575 Ac	22,000	22,000	22,000	25,000
600 Ac	22,000	22,000	22,000	25,000
125 Dc	10,000	10,000	.....	20,000
250 Dc	10,000	10,000	.....	20,000

TRI-BREAK LINE

Type TB6—300-600 Amperes, 2- and 3-poles



- Bus connected
- Line and load lugs
- UL File E42263

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts	Therm-Mag-Fuse	Type
120–600 Ac	200,000	TB6
24–250 Dc	Consult Factory	TB6

Quick Selection Guide

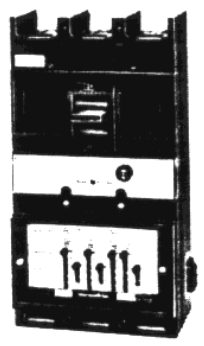
Circuit Breakers by Amperes

600 Volts Maximum

600 AMPERES MAXIMUM RATING

J 600 LINE

Types THJS, THJSS—150-600 Amperes, 3-pole

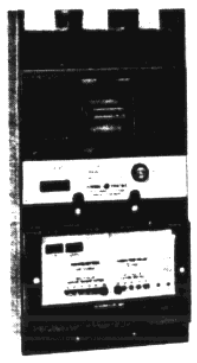


- Solid State—up to 7 adjustable functions
- Integral ground fault trip
- Fault trip indicators
- Bus connected
- Line and load lugs
- 100% rated option
- UL File E11592

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts Ac	Types THJS, THJSS
120	65,000
240	65,000
480	35,000
600	25,000

Type TJR—150-600 Amperes, 3-pole



- Solid State construction
- Bus connected
- Line and load lugs
- UL File E11592

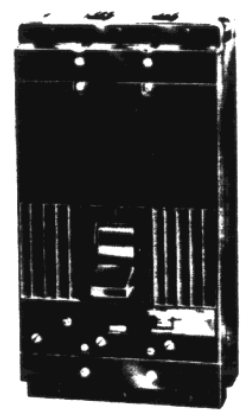
INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts Ac	Type TJR	Type THJR
120	42,000	65,000
240	42,000	65,000
480	30 000	35,000
600	22,000	25,000

800 AMPERES MAXIMUM RATING

K 800 LINE

Types TKM, TKC, THKM—300-800 Amperes, 2- and 3-poles



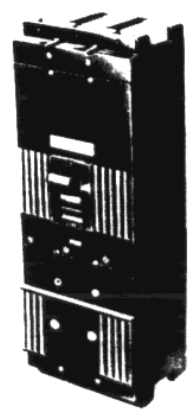
- Bus connected
- Line and load lugs
- UL File E11592

INTERRUPTING RATINGS — RMS Symmetrical Amperes

Volts	Type TKM	Type TKC	Type THKM
	Therm-Mag	Mag Only	Therm-Mag
120 Ac	42,000	42,000	65,000
240 Ac	42,000	42,000	65,000
460 Ac	30,000	30,000	35,000
480 Ac	30,000	30,000	35,000
575 Ac	22,000	22,000	25,000
600 Ac	22,000	22,000	25,000
125 Dc	10,000	10,000	20,000
250 Dc	10,000	10,000	20,000

TRI-BREAK® LINE

Type TB8—600-800 Amperes, 3-pole



- Bus connected
- Line and load lugs

INTERRUPTING RATINGS — RMS Symmetrical Amperes

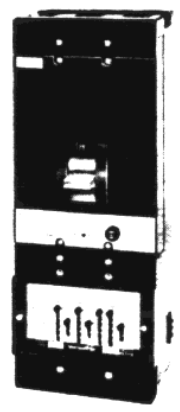
Volts	Therm-Mag Fuse	Type
120–600 Ac	200,000	TB8
24–250 Dc	Consult Factory	TB8

Quick Selection Guide

Circuit Breakers by Amperes
600 Volts Maximum

1200 AMPERES MAXIMUM RATING

K 1200 LINE
Types THKS, THKSS—400-1200 Amperes, 3-pole

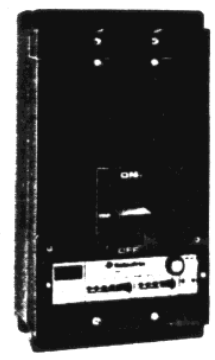


- Solid State—up to 7 adjustable functions
- Integral ground fault trip
- Fault trip indicators
- Bus connected
- Line and load lugs
- 100% rated optional
- UL File 11592

INTERRUPTING RATINGS—RMS Symmetrical Amperes

Volts Ac	Types THKS, THKSS
120	65,000
240	65,000
480	50,000
600	25,000

Types TKR, THKR—400-1200 Amperes, 3-pole



- Solid State
- Integral ground fault trip
- Bus connected
- Line and load lugs
- UL File E11592

INTERRUPTING RATINGS—RMS Symmetrical Amperes

Volts Ac	Types TKR	Type THKR
120	42,000	65,000
240	42,000	65,000
480	30,000	50,000
600	22,000	25,000

1200 AMPERES MAXIMUM RATING

K 1200 LINE
Types TKM, TKC, THKM—600-1200 Amperes, 2- and 3-poles

- Bus connected
- Line and load lugs
- UL Files E11592

INTERRUPTING RATINGS—RMS Symmetrical Amperes

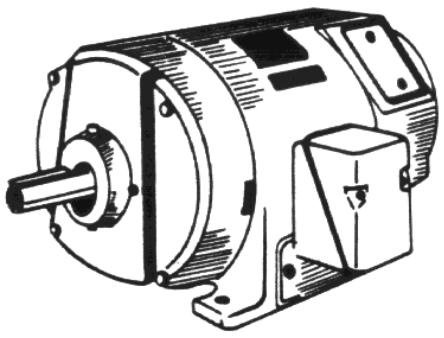
Volts Ac	Type TKM	Type TKC	Type THKM
	Therm-Mag	Mag Only	Therm-Mag
120	42,000	42,000	65,000
240	42,000	42,000	65,000
460	30,000	30,000	35,000
480	30,000	30,000	35,000
575	22,000	22,000	25,000
600	22,000	22,000	25,000
125 dc	10,000	10,000	20,000
250 dc	10,000	10,000	20,000

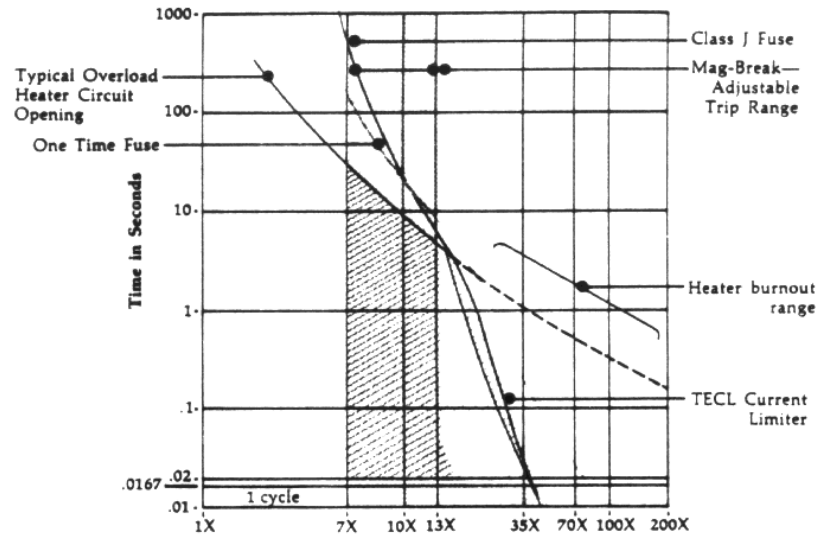
Quick Selection Guide

Special Purpose Circuit Breakers

Mag-Break®

An Area of Motor Circuit Protection Not Provided by Any Other Class of Device



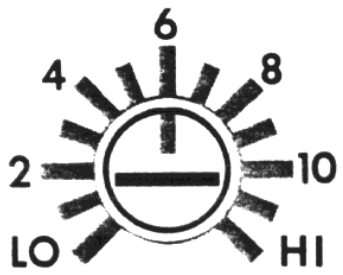


A COMPLETE LINE OF MOTOR CIRCUIT PROTECTORS

Specially developed to provide accurate and fast clearing of faults on motor circuits — including low level faults — the type most prevalent in motor installations. Because it is designed expressly for motor circuits, MAG-BREAK serves to minimize damage to motors and motor control apparatus in addition to protecting motor branch circuit conductors. Continuous current ratings and adjustable instantaneous trip ranges have been designed to meet NEC requirements concerning motor full load and locked rotor current. The MAG-BREAK instantaneous trip point can be set low and precisely (just above motor inrush) assuring fault protection and eliminating nuisance tripping.

MINIMIZE CIRCUIT DAMAGE . . . SELECT PRECISE, OPTIMUM TRIP POINT

Each pole of the Mag-Break breaker contains a current sensing element to trip the breaker instantaneously when the preselected current setting is exceeded. Mag-Break's unique magnetic system permits independent factory calibration of both the Hi and Lo ends of the trip range. This feature provides field adjustability with superior accuracy and repeatability at all Mag-Break trip scale positions.

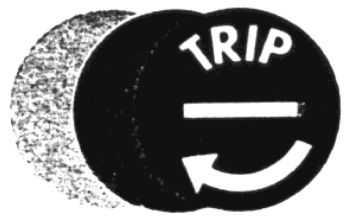


In addition to the two independent factory calibrations, Mag-Break is field adjustable by means of simple screwdriver adjustments on the front of each breaker. The field adjustable setting is continuous over the entire range from Hi to Lo and each breaker rating label contains a table converting setting position to amperes. An overcurrent on any pole will cause all three poles to trip simultaneously, thus preventing costly single phasing problems.

In the range of 7–35x rated current, the region where most motor circuits failures begin, MAG-BREAK acts instantly to remove the fault from the system. At 13x, the maximum setting allowed by the NEC, other devices take 50–400 times as long. All data based on NEC requirements and manufacturers' recommendation.

FEATURES

- No costly equipment modifications are required. MAG-BREAK motor circuit protectors are mechanically interchangeable in all respects with conventional circuit breakers of the same frame size.
- Conventional circuit breaker accessories: Under voltage release, Shunt Trip and Auxiliary switches can be used.
- External handle and operating mechanisms currently available are fully compatible with the MAG-BREAK line.
- External handles will trip indicate when used with MAG-BREAKs. Toggle throw is positive . . . false indication is eliminated.
- MAG-BREAKs include the Verifier(TM) — twist-to-trip permitting the mechanical simulation of overcurrent tripping through actuation of linkages and latch surfaces not operated by the ON-OFF handle. Experience has shown that protective devices in industrial applications better maintain their original protective characteristics when regularly exercised.‡



- Widest trip setting ranges in the industry — specifically designed to meet the control flexibility demands of modern motor installations.
- Highly accurate calibration over the entire range of trip settings.

  "Designed in" with standability for use with slow trip overload relays — meets "6 times rated current for 30 seconds" criteria.

Quick Selection Guide

Special Purpose Circuit Breakers

Mag-Break® – motor circuit protector

PROVIDES FAST, ACCURATE FAULT PROTECTION FOR MOTOR CIRCUITS

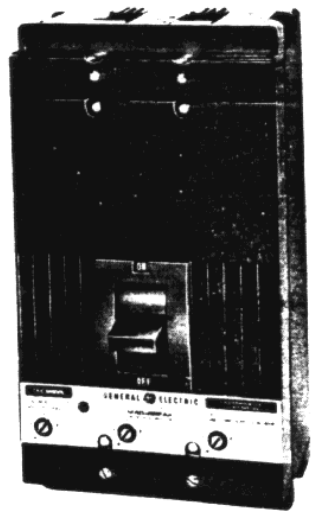
- 600 Volts A-c
- 250 Volts D-c
- 2 and 3 Poles
- UL component recognized

STANDARD INTERRUPTING CAPACITY DEVICES

TEC
3-150 Amps

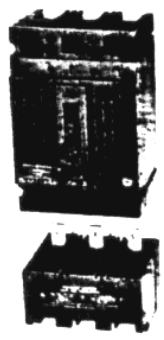
TFC
225 Amps

TJC
400-600 Amps



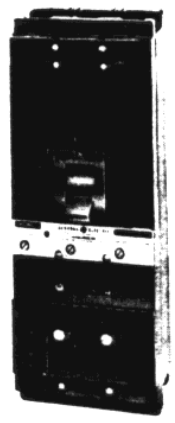
TKC
800-1200 Amps

LIMITER ASSISTED DEVICES



TEC & TECL①
3-150 Amps

TBC 4
400 Amps



TBC 6
600 Amps

TBC 8①
800 Amps

Circuit Breaker Type		Ampere Rating	No. Poles	Maximum Voltage Rating		UL Listed Interrupting Ratings — Symmetrical RMS Amperes				
						Ac Voltage			Dc Voltage	
				Ac	Dc	240	480	600	125	250
MAG-BREAK®	TEC	3—150	2, 3	600		10,000	10,000	10,000	10,000	10,000
	①②TECL & TEC	3—150	2, 3	600		100,000	100,000	100,000		
	TFC	225	2, 3	600	250	25,000	22,000	22,000	10,000	10,000
	TBC4	225—400	2, 3	600		100,000	100,000	100,000		
	TJC	400—600	2, 3	600	250	42,000	30,000	22,000	10,000	10,000
	TBC6	600	2, 3	600		100,000	100,000	100,000		
	TKC	800—1200	2, 3	600	250	42,000	30,000	22,000	10,000	10,000
	①TBC8	800	2, 3	600		100,000	100,000	100,000		

① Not UL listed. Interrupting ratings based on NEMA test procedures.
② Rating shown for TEC in combination with TECI.

MINE DUTY BREAKERS

50-1200 Amperes **600 & 1000 Volts Ac, 300 Volts Dc**

J Frame 400-ampere premium-duty breaker

DESCRIPTION

Mine Duty Circuit Breakers are designed to withstand the extreme service conditions which exist in underground mining applications, and permit the user to comply with the Mandatory Safety Standards, Underground Coal Mines for protection of trailing cables.

Three complete lines of Mine Duty breakers are available: Premium Duty, Standard Duty and 1000 volt Premium Duty. Each incorporates all of the Mine Duty features and rugged design. The major differences are voltage ratings, interrupting ratings and time-current characteristics.

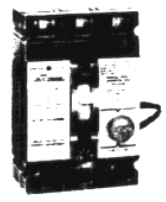
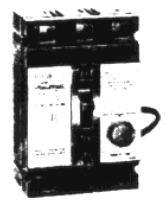
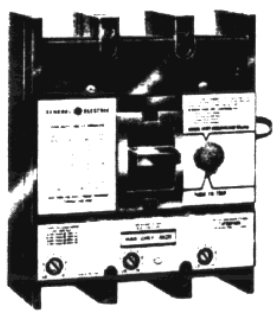
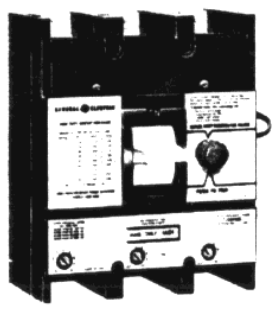
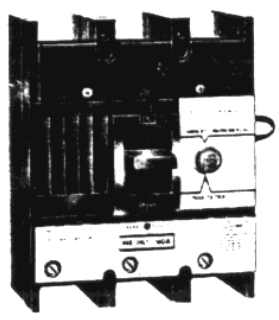
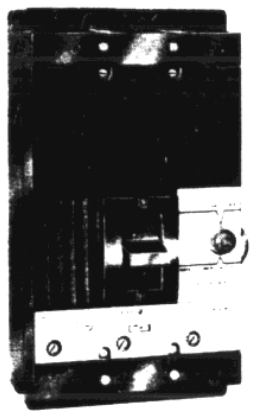
This rugged family of breakers is designed for over 10,000 ON-TRIP-RESET operations, more than double the life of other breakers used in low-voltage mining applications. Also, special care has been taken to minimize entrance of contaminants through the use of unique baffles, boots and gaskets.

A special line of accessories has also been assembled specifically for use in mining applications. This includes a manual reset under-voltage release which prevents contact kiss and assures proper attention following a fault trip, plug-in bases with safety interlocks, low level ground fault detection, and many others.

FEATURES

- Designed for over 10,000 ON-TRIP-RESET operations.
- PUSH-TO-TRIP button for emergency shutdown.
- Protective boot over PUSH-TO-TRIP button.
- Gasketed trip-unit openings.
- Dust cover over ventilation holes to minimize entrance of contaminants.
- High-visibility, corrosion-resistant instruction plates on front cover.
- Magnetic trip ranges based on Federal Coal Mine Health and Safety Act regulations, with settings clearly listed on front of breaker.
- Three basic frame sizes for 50 to 1200 amperes.
- Ruggedly constructed molded case.
- Front-adjustable magnetic trip in each phase provides instantaneous trip due to short circuit.
- Heavy-duty latch mechanism.
- Silver alloy contacts minimize pitting and burning for longer contact life.
- Arc chutes of heat-absorbing insulating material and metal plates quickly quench the arcs.
- Solenoid-operated Undervoltage Release (UVR) prevents breaker reset or contact closure until power is available.
- Thermal trip provides protection against sustained overloads.
- Composite catalog numbers for complete breakers plus Mine Duty UVR.

MINE DUTY BREAKERS

Breaker Frame	Ampere Range	Magnetic Ranges, Amperes	1000 VOLT PREMIUM DUTY	PREMIUM DUTY	STANDARD DUTY
E 100	50-100	50-180 150-500			
JF 225	100-225	300-1000 500-1500			
J 225	Thru 225	300-1000 500-1500			
J 400	Thru 400	300-1000 500-1500 900-3000			
J 600	Thru 600	900-3000			
K 800	Thru 800	1250-3000 2000-4000			
K 1200	Thru 1200	1250-3000 2000-4000			

Quick Selection Guide

Special Purpose Circuit Breakers

TYPE THQE

- **15-60 Amperes**
- **1, 2 and 3 poles**
- **10,000 AIC UL listed**
- **Factory or field installable terminations available**

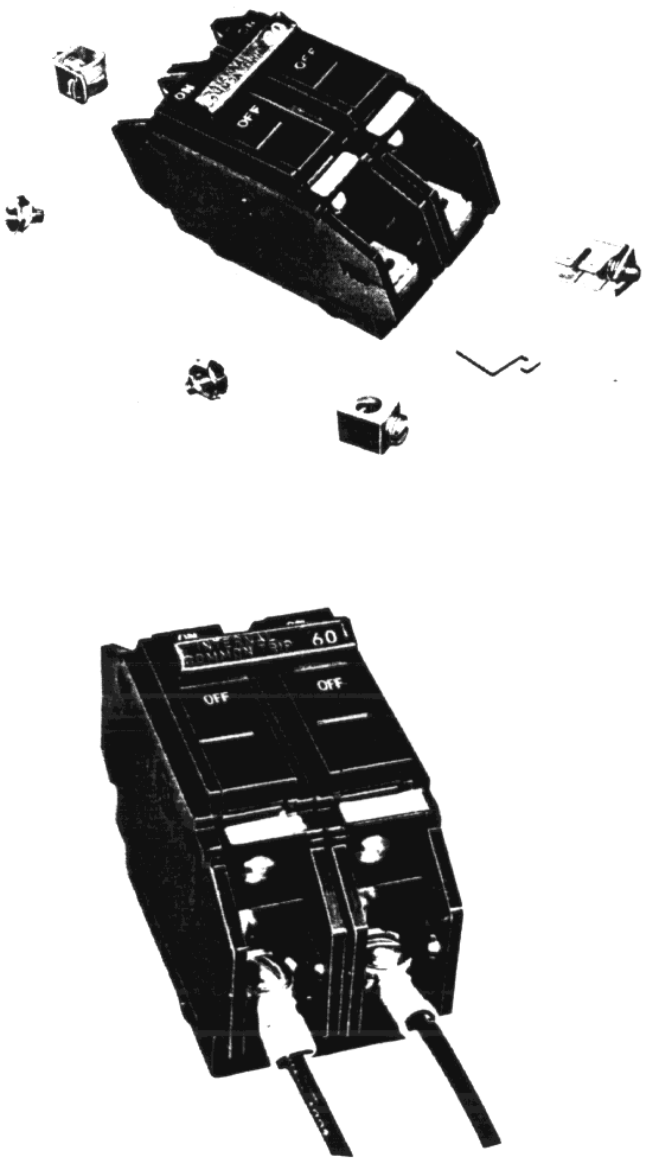
Circuit Breaker lets you choose the terminations.

Now. A labor-saving circuit breaker from General Electric that lets you specify your choice of terminals. No matter what type of line and load terminations your equipment needs, you can get them standard on GE THQE circuit breakers.

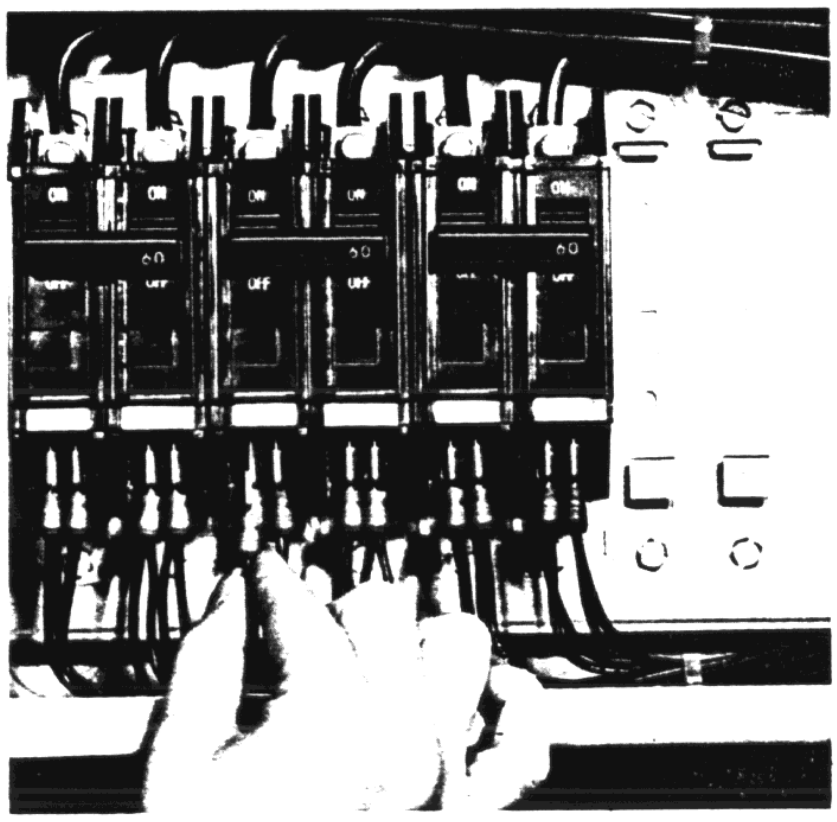
Flexibility is the key — choose from three terminations:

- The RING TERMINAL provides for positive wire connections. It eliminates possible loosening or unintended removal of leads.
- The QUICK CONNECTOR gives you a fast method of multiple wiring. You can wire up to 4 leads from each quick connect termination. Wiring time can be cut in half by using a pre-assembled and terminated wire harness.
- The STANDARD LUG offers a secure wiring method when no special pre-terminated wire harness is used. Lugs give you maximum range of wire size on the line and load side.
- The CLIP-ON front or back mounting bracket provides fast and easy installation and flexible mounting arrangements.

The GE THQE breaker offers reliable and conventional circuit protection. It meets the application requirements for heat pumps, electric furnaces, business machines, control panels, air handling and commercial refrigeration units, and similar types of equipment.



THQE Breaker with ring terminals



Backmounted in control panel with quick connect terminals

Quick Selection Guide

Interrupting Ratings

Circuit Breaker Type		Ampere Rating	No. Poles	Maximum Voltage Rating		UL Listed Interrupting Ratings—Symmetrical RMS Amperes						
						Ac Voltage					Dc Voltage	
				Ac	Dc	120/240	240	277	480	600	125	250
Q LINE		5	1	120/240		3000①						
			2									
	TQL, TQAL TQB, TQC	110–125	2	120/240		10,000						
		5–10	2	240			5000②					
			3									
		15–70	1	120/240		10,000						
	THQL, THQAL THQB, THQC THQE	15–100	2									
		15–100	2	240			10,000					
			3									
	THHQB, THHQC, THHQAL	15–125	1, 2	120/240		22,000						
			2, 3	240			22,000					
	TXQL, TXQB, TXQC	15–30	1	120/240		65,000						
			2									
			2, 3	240			65,000					
	TQDL	125–200	2	120/240		10,000						
		125–225	3	240			10,000					
	THQDL	125–225	3	240			22,000					
	TQD	100–225	2, 3	240			10,000					
	THQD	100–225	2, 3	240			22,000					
	TJD	250–400	2, 3	240	250		22,000					10,000
CB3®	THQL-GF	15–30	1	120		10,000						
	THQL-GF	15–30	2	120/240								
	THQC-GF	15–30	1	120		10,000						
	THHQL-GF THHQB-GF	15–30	1	120		22,000						
E 150	TE	15–60	1	120		10,000						
	TE-GF	15–30	1	120		10,000						
	TEB	10–100③	1	120	125	10,000					5000	
			2	240	250		10,000					5000
			3									
	TED	10–50③	1	480					10,000			
		10–100③④	1	277	125			14,000			10,000	
			2	480	250		18,000		14,000			10,000
		15–100	3	480			18,000		14,000			
		15–100	2	600	250		18,000		14,000	14,000		10,000
			3									
	THED	15–30	1	277	125			65,000			20,000③	
		15–100	2	600	250		65,000		25,000	18,000		20,000③
		15–150	3									

①Not UL listed.
②10 Amp, not UL listed.
③Dc interrupting ratings above 10,000 amperes not UL listed.
④1-pole TED above 50 amperes not UL listed.

Quick Selection Guide

Interrupting Ratings

Circuit Breaker Type		Ampere Rating	No. Poles	Maximum Voltage Rating		UL Listed Interrupting Ratings—Symmetrical RMS Amperes					
						Ac Voltage				Dc Voltage	
				Ac	Dc	240	480	600	1000	125	250
F 225	TFJ, TFK	70–225	2	600	250	25,000	22,000	22,000			10,000
			3								
	THFK	70–225	2	600	250	65,000	25,000	22,000			20,000 ②
			3								
J 600	TJJ, TJK4	125–400	2	600	250	42,000	30,000	22,000			10,000
			3								
	TJK6	250–600	2	600	250	42,000	30,000	22,000			10,000
			3								
	THJK4	125–400	2	600	250	65,000	35,000	25,000			20,000 ②
			3								
	THJK6	250–600	2	600	250	65,000	30,000	25,000			20,000 ②
			3								
K 1200	TKM8	300–800	2	600	250	42,000	30,000	22,000			10,000
			3								
	TKM12	600–1200	2, 3	600		42,000	30,000	22,000			
	THKM8	300–800	2	600	250	65,000	35,000	25,000			20,000 ②
			3								
	THKM12	600–1200	2, 3	600		65,000	35,000	25,000			
TRI-BREAK® ④	TB1	15–150	2	600		200,000	200,000	200,000			Refer to Company
			3								
	④TB4	125–400	2	600		200,000	200,000	200,000			Refer to Company
			3								
	④TB6	300–600	2	600		200,000	200,000	200,000			Refer to Company
			3								
	④TB8	600–800	2	600		200,000	200,000	200,000			Refer to Company
			3								
MAG-BREAK®	TEC	3–150	2, 3	600		10,000	10,000	10,000			
	①③TECL & TEC	3–150	2, 3	600		100,000	100,000	100,000			
	①TFC	225	2, 3	600	250	25,000	22,000	22,000			10,000
	TBC4	225–400	2, 3	600		100,000	100,000	100,000			
	TJC	400–600	2, 3	600	250	42,000	30,000	22,000			10,000
	⑤TBC6	600	2, 3	600		100,000	100,000	100,000			
	TKC	800–1200	2, 3	600	250	42,000	30,000	22,000			10,000
	①TBC8	800	2, 3	600		100,000	100,000	100,000			

①Not UL listed. Interrupting ratings based on NEMA test procedures.
②Dc interrupting ratings above 10,000 amps not UL listed.
③Rating shown for TEC in combination with TECL.
④UL listed with internally mounted accessories at 100,000 amps IC.
⑤UL listing internally mounted accessories pending.

Quick Selection Guide

Interrupting Ratings

Circuit Breaker Type		Ampere Rating	No. Poles	Maximum Voltage Rating		UL Listed Interrupting Ratings—Symmetrical RMS Amperes							
						Ac Voltage					Dc Voltage		
				Ac	Dc	120/240	240	480	600	1000	125	250	300
VERSATRIP®	THJS/THJSS	150–600	3	600		65,000	65,000	35,000	25,000				
	THKS/THKSS	400–1200	3	600		65,000	65,000	50,000	25,000				
SELECTRIP™	TJR	150–600	3	600		42,000	42,000	30,000	22,000				
	TKR	400–1200	3	600		42,000	42,000	30,000	22,000				
	THJR	150–600	3	600		65,000	65,000	35,000	25,000				
	THKR	400–1200	3	600		65,000	65,000	50,000	25,000				
MINE DUTY①													
PREMIUM DUTY	E-100 MAG-ONLY	50–100	3	600	300	65,000	65,000	25,000	18,000				10,000
	E-100 THER-MAG	50–100	3	600	300	65,000	65,000	25,000	18,000				20,000
	JF-225	100–225	3	600	300	42,000	42,000	30,000	22,000				10,000
	J-225	100–225	3	600	300	65,000	65,000	35,000	25,000				20,000
	J-400	100–400	3	600	300	65,000	65,000	35,000	25,000				20,000
	J-600	400–600	3	600	300	65,000	65,000	30,000	25,000				20,000
	K-800	600–800	3	600	300	65,000	65,000	35,000	25,000				20,000
	K-1200	600–800	3	600	300	65,000	65,000	35,000	25,000				20,000
	K-1200 MAG-ONLY	1200	3	600	300	65,000	65,000	35,000	25,000				20,000
	K-1200 THER-MAG	1000–1200	3	600	300	65,000	65,000	35,000	25,000				
1000 VOLT PREMIUM DUTY	E-100 MAG-ONLY	50–100	3	1000	300	65,000	65,000	25,000	18,000	10,000			10,000
	E-100 THER-MAG	50–100	3	1000	300	65,000	65,000	25,000	18,000	10,000			20,000
	J-225	225	3	1000	300	65,000	65,000	35,000	25,000	10,000			20,000
	J-400	400	3	1000	300	65,000	65,000	35,000	25,000	10,000			20,000
	J-600	600	3	1000	300	65,000	65,000	30,000	25,000	10,000			20,000
	K-800	300–800	3	1000	300	65,000	65,000	35,000	25,000	10,000			20,000
	K-1200 MAG-ONLY	1200	3	1000	300	65,000	65,000	35,000	25,000	10,000			20,000
	K-1200 THER-MAG	1000–1200	3	1000	300	65,000	65,000	35,000	25,000	10,000			
STANDARD DUTY	E-100 MAG-ONLY	50–100	3	600	300	18,000	18,000	14,000	14,000				10,000
	E-100 THER-MAG	50–100	3	600	300	18,000	18,000	14,000	14,000				10,000
	J-225	100–225	3	600	300	25,000	25,000	22,000	22,000				10,000
	J-400	100–400	3	600	300	42,000	42,000	30,000	22,000				10,000
	J-600	400–600	3	600	300	42,000	42,000	30,000	22,000				10,000
	K-800	600–800	3	600	300	42,000	42,000	30,000	22,000				10,000
	K-1200	600–800	3	600	300	42,000	42,000	30,000	22,000				10,000
	K-1200 MAG-ONLY	1200	3	600	300	42,000	42,000	30,000	22,000				10,000
	K-1200 THER-MAG	1000–1200	3	600	300	42,000	42,000	30,000	22,000				

①Not UL listed.

Quick Selection Guide

Federal Specification WC375

WC375a

Federal Class	Circuit Breaker Type	
1a	THQL, THQAL, THQB, THQC	1 pole
1b	THQL, THQAL, THQB, THQC	2 & 3 pole
2a	TED	1 pole
2b	THQL, THQAL, THQB, THQC	1 pole
2c	THQL, THQAL, THQB, THQC	2 & 3 pole
2d	TED	
2e	TB1	
2f	THED	
3a	TFJ, TFK	
3b	THFK	
3c	TB4	
3d	TJJ, TJK	
4a	TB4	
4b	TJJ, TJK	
4c	THJK	
5a	TJK6, TKM8	
5b	THJK6, THKM8	
6	TB6	2 & 3 pole

WC375b

Federal Class	Circuit Breaker Type	
10a ①	THQL, THQAL, THQB, THQC, THHQL, THHQAL	
10b	THHQB, THHQC, TE, TEB, TED	
11a	THQLGF, THQBGF, THQCGF, TEGF	
11b	THHQLGF, THHQBGF	
12a ①		
12b	TQD, THQD, THQL, THQB, THQC	2 & 3 pole 240 Vac
12c	TED	1 pole 277 Vac
13a	TED	1 pole 277 Vac
13b	TED	1, 2, 3 pole 277/480
14a ①	THHQL, THHQAL, THHQB, THHQC	1, 2 pole 120/240
14b	THQD, TJD	2 & 3 pole 240 Vac
15a ①	TXQL, TXQB, TXQC	1, 2 pole 120/240
15b	THFK	2 & 3 pole
16a ③	TB1, TB4	
16b ③	TB1, TB4 TB6	
17a ③	TB4, TB6, TB8	
18a	TED 6	
19a	TFJ, TFK	
20a	TFJ, TFK	
21a	TJJ, TJK, TKM, THJS, THKS ③, TJR, TKR ③	
22a	THED	
23a	THJK, THKM, THJS, THKS, THJR, THKR	
24a	TPS, TPMM, TPSS, TPR, TPRR, THS	
25a	THMM, THSS, THR, THRR	
26a ③	TB4, TB6, TB8	2 & 3 pole

①Single-unit or duplex construction must be specified.
②This class may incorporate a current limiting device within the breaker case.
③Through 800 Amp only.

Descriptive Material

*Order all descriptive material (**except GES curves**) from your local General Electric Sales Office, or from General Electric Company, Distribution Unit, Hoerle Bldg., Plainville, CT. 06062.*

Order GES curves from General Electric Company, Distribution Services, Bldg. 705, Corporation Park, Scotia, N. Y. 12302.

BULLETINS

Q Line Breakers and Accessories	GEA-8481
E 150 Line Molded Case Circuit Breakers	GEA-7403
F 225 Line Molded Case Circuit Breakers	GEA-7404
J 600 Line Molded Case Circuit Breakers	GEA-7405
K 1200 Line Molded Case Circuit Breakers	GEA-7406
TRI-BREAK® Integrally Fused Circuit Breakers	GEA-7477
MAG-BREAK® Motor Circuit Protector	GEA-7498
Circuit Breakers for Fire-pump Controllers	GEA-9745
POWER-BREAK® Line	GET-9732
GROUND BREAK® Systems	GET-2964
CB3® Ground-fault Circuit Interrupter	GEA-9739
GTR* Ground Trip Receptacle	GEA-9746
Insulated-case Circuit Breakers with VersaTrip®	GET-6202
Mine Duty Circuit Breakers	GET-6207
Testing and Maintenance, Molded Case Circuit Breakers	GET-2963

ACCESSORY INSTRUCTION BULLETINS

Breaker Line	Bell Alarm Switch	Auxiliary Switch	Shunt Trip	3-coil Shunt Trip	Undervoltage Release
E 150, TB1	GEA-7407	GEH-3418	GEH-3416	GEH-3434	GEH-3417
F 225	GEA-7407	GEH-3013	GEH-3015	GEH-3345	GEH-3015
J 600	GEH-3320	GEH-3321	GEH-3435	GEH-3346	GEH-3435
K 1200	GEH-3320	GEH-3321	GEH'3344	GEH-3346	GEH-3344
TRI-BREAK (TB4)	GEH-3320	GEH-3321	GEH-3435	GEH-3346	GEH-3435
TRI-BREAK (TB6, TB8)	GEH-3320	GEH-3321	GEH-3344	GEH-3346	GEH-3344

OUTLINE DRAWINGS

Unenclosed Circuit Breakers	Outline Drawing
Q LINE	
THQB, THHQB, TXQB	455C873
THQC, THHQC, TXQC	455C874
TQD, THQD	455C765
TQDL, THQDL	139C3957
THQL, THHQL, TXQL	455C872
E 150 LINE	
TE (1-pole)	455C200
TEB, TED, THED	139C643
F 225 LINE	
TFJ, TFK, THFK	455C561
J 600 LINE	
TJD	139C3602
TJJ, TJK, THJK	455C564
TJS	139C4023-1
TJR	
K 1200 LINE	
TKM, THKM	455C840
TKS	139C4041-1
TKR	

Unenclosed Circuit Breakers	Outline Drawing
TRI-BREAK	
TB1 (Old Style)	456C144
TB4	456C145
TB6, TB8	456C146
MAG-BREAK	
TEC	139C3800
TECL	139C3855
TBC4	455C395DD
TFC	455C395DA
TBC6	455C395DE
TJC	455C395DB
TBC8	455C395DF
TKC	455C395DC
MINE DUTY	
E (Therm-Mag)	139C3643-5
E (Mag-Only)	139C800-2
J	455C564-7
K	455C840-6

TIME CURRENT CURVES

Breaker	10½" x 15" Translucent Paper for System Coordination Studies	8½" x 11" Size
Q LINE		
THQL-GF, THQB-GF	. . .	K215-1254
THQB, THQC, THQL (1-, 2- & 3-pole, 15–50 Amp)		
TXQB, TXQC, TXQL (1- & 2-pole, 15–30 Amp)	. . .	K215-63C①
THQAL, THHQAL, THQB, THQC (1-pole, 60–70 Amp; 2- & 3-pole 60–100 Amp)	. . . .	K215-64C①
THHQAL, TQAL (2-pole, 110 & 125 Amp)		K215-129①
THQP (1- & 2-pole, 15–50 Amp)		K215-79D①
TQD, THQD (100–225 Amp)	GES-6108A	. . . . .
TQDL (125–200 Amp)	. . .	K215-124①
E 150 LINE		
TEB (15–45 Amp, 240V)	GES-6122A	. . . . .
(50–80 Amp, 240V)	GES-6123A	. . . . .
(90, 100 Amp, 240V)	GES-6124A	. . . . .
TED (15–45 Amp, 480V)	GES-6113B	. . . . .
(50–80 Amp, 480V)	GES-6114B	. . . . .
(90, 100 Amp, 480V)	GES-6115B	. . . . .
TED, THED (15–45 Amp, 600V)	GES-6119B	. . . . .
(50–80 Amp, 600V)	GES-6120B	. . . . .
(90, 100 Amp, 600V)	GES-6121B	. . . . .
F 225 LINE		
TFJ, TFK, THFK (70–225 Amp)	GES-6103C	. . . . .
J 600 LINE		
TJJ, TJK, THJK (125–600 Amp)	GES-6104C	. . . . .
TJD (400 Amp Max.)	GES-6112	. . . . .
K 1200 LINE		
TKMA, THKMA (300–1200 Amp)	GES-6111B	. . . . .
VERSATRIP (TKS, TJS)		
Long-time, Short-time and Instantaneous	GES-6133	. . . . .
Ground-fault Pick-up Settings and Delay	GES-6134	. . . . .
SELECTRIP		
Long-time and Instantaneous	GES-6174	
Long-time and Magnetic Delay	GES-6175	
Ground-fault	GES-6176	
TRI-BREAK LINE		
TB1 (15–45 Amp)	②	. . . . .
(50–100 Amp)	②	. . . . .
(110–150 Amp)	②	. . . . .
TB1 (15–30 Amp) } (Old Style)	. .	K215-71C①
(40–100 Amp) } (Old Style)	. .	K215-72C①
TB4	. . . .	K215-73C①
TB6	. . . .	K215-74C①
TB8	. . . . .	K215-75C①
MAG-BREAK LINE		
TEC, TECL	GES-9600	. . . . .
	GES-9601	
	. . .	K215-100A①
TFC	. . . . .	K215-101①
TJC(400 Amp)	GES-6141	. . . . .
TJC(600 Amp)	GES-6142	. . . . .
TKC(800 Amp)	GES-6146	. . . . .
TKC(1200 Amp)	GES-6147	. . . . .
TBC(225 Amp)	GES-6136	. . . . .
TBC(400 Amp)	GES-6137	. . . . .
TBC(600 Amp)	GES-6138	. . . . .
TBC(800 Amp)	GES-6139	. . . . .
MINE DUTY LINE		
E Therm-Mag—50A, 70A	GES-6151	. . . . .
Therm-Mag—100A	GES-6152	. . . . .
Mag Only	GES-6153	. . . . .
J Therm-Mag	GES-6154	. . . . .
Mag Only	GES-6155	. . . . .
K Therm-Mag	GES-6156	. . . . .
Mag Only	GES-6157	. . . . .

①Also available on 10½" x 15" translucent paper. If required, specify on order.

Circuit Breakers and Current-limiting Fuses

Coordination and Selection Tables

CAUTION: Larger fuses than those shown may cause reduced circuit breaker life expectancy or system failure.

GENERAL

The following fuse-breaker coordination data is based on the use of Class J, L and K-1 fuses.

Class J fusing is recommended over Class K-1 fusing. With Class J fusing a rejection feature is inherently part of the Class J fuse and fuse mounting and only Class J fuses can be installed.

Class K-1 fuses mount in standard non-rejection type fuse holders that do not reject other classes of fuses that will not provide the protection afforded by Class K-1 fuses.

EXPLANATION OF TERMS USED

Maximum Fuse-line Side is the maximum fuse rating that can be used with the circuit breaker. The fuse must be connected on the line side of the circuit breaker.

Maximum Fuse-load Side is the largest size fuse that can be used on the load side of the circuit breaker. These ratings are lower than line-side-mounted fuse ratings because the high transient-arcing voltage created across the fuse is impressed across the trip and internal parts of the circuit breaker during a fault interruption. Higher ratings may cause flash over within the circuit breaker during an interruption.

Minimum Fuse Rating—HI or LO is the smallest fuse rating that may be used that will clear the knee of the circuit breaker curve. This takes full advantage of the thermal overload protection provided by the circuit breaker, thus eliminating nuisance fuse blowing at these ratings. Since fuse characteristics vary among manufacturers, values shown are typical.

COORDINATION TABLE—For selecting fuses when circuit breaker rating is known

Class J, L or K-1 Current-limiting Fuse Rating—Amperes

Circuit Breaker Amp Rating	THQP ①		THQLGF, THQBGF, THQCGF④		TQB, TQC, TQL, THQB, THQC, THQL ①		THHQB, THHQC ①, THHQL		THHQLGF, THHQBGF, ③		TXQB TCQC, TXQL②		TQDL, THQDL		TQD ①			THQD ①			TJD ①			Circuit Breaker Amp Rating
	Line Side		Line Side		Line Side		Line Side		Line Side		Line Side		Line Side		Min.	Maximum		Min.	Maximum		Min.	Maximum		
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		Load Side	Line Side		Load Side	Line Side		Load Side	Line Side	
5																								5
10																								10
15	50	100	50	100	50	200			50	100	50	300												15
20	50	100	50	100	50	200			50	100	50	300												20
25	50	100	50	100	50	200			50	100														25
30	70	100	70	100	70	200			70	100	70	300												30
35	70	100			70	200																		35
40	100	100			100	200	100	300																40
45	100	100			100	200	100	300																45
50	100	100			100	200	100	300																50
60					100	200	100	300																60
70					150	200	150	300																70
80					200	200	200	300																80
90					200	200	200	400																90
100					200	300	200	400							200	600	800	200	800	1000				100
110					200	300	200	400							200	600	800	200	800	1000				110
125					200	300	200	400					200	600	200	600	800	200	800	1000				125
150													300	600	300	600	800	300	800	1000				150
175													400	600	400	600	800	400	800	1000				175
200													400	600	400	600	800	400	800	1000				200
225															400	600	800	400	800	1000				225
250																					600	800	1000	250
300																					600	800	1000	300
350																					600	800	1000	350
400																					600	800	1000	400

Fuse data based on systems having the following maximum available current:

①240 Volts ac, 65,000 amperes symmetrical.
②240 Volts ac, 100,000 amperes symmetrical.
③120 Volts ac, 65,000 amperes symmetrical.
④120 Volts ac, 42,000 amperes symmetrical.

COORDINATION TABLE—For selecting fuses when circuit breaker rating is known (Cont'd)

Based on the use of Class J, L and K-1 fuses

Circuit Breaker Amp Rating	Class J, L or K-T Current-limiting Fuse Rating—Amperes																							
	TEC ①			TEGFI ⑤		TEB ②			TED, THED ③			③TFJ, TFK, THFK, TFC				③ TJJ, TJK, THJK, TJS, TJSS, TJR, TJC				③ TKM, THKM, TKR, THKS, THKR, THKSS, TKC			
		Max Fuse		Min Fuse	Max Fuse		Max Fuse			Max Fuse		Min Fuse		Max Fuse		Min Fuse ④		Max Fuse		Min Fuse ④		Max Fuse	
	Min Fuse	Load Side	Line Side	Fuse Line	Load Side	Min Fuse	Load Side	Line Side	Min Line	Load Side	Line Side	Mag Trip LO	Mag Trip HI	Load Side	Line Side	Mag Trip LO	Mag Trip HI	Load Side	Line Side	Mag Trip LO	Mag Trip HI	Load Side	Line Side
3	15	20	30	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
7	20	20	30	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
15	30	30	50	50	100	50	100	200	70	200	400	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
20	. .	. .	. . .	50	100	50	100	200	70	200	400	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
25	.	. .	. . .	50	100	50	100	200	100	200	400	. . .	. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
30	60	100	100	50	100	60	100	200	100	200	400	. . .	. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
35	.	. .	. . .	. .	. .	100	100	200	100	200	400	. . .	. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
40	. .	. .	. . .	. .	. .	100	100	200	100	300	400	. . .	. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
45	.	. .	. . .	. .	. .	100	150	200	100	300	400	. . .	. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
50	100	100	200	. .	. .	100	150	200	100	300	400	. . .	. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
60	. .	. .	. . .	. .	. .	125	200	300	125	300	400	. . .	. .	. .	. .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
70	. .	.	. .	. .	.	200	200	300	200	300	400	200	400	800	1200	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .
80	. .	. .	. . .	. .	. .	200	200	300	200	300	400	200	400	800	1200	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .
90	. .	. .	. . .	. .	. .	200	200	300	200	300	400	200	400	800	1200	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .
100	200	200	300	. .	. .	200	200	300	200	300	400	300	400	800	1200	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .
110	. .	.	. . .	. .	. .	. .	. .	. .	200	300	400	300	400	800	1200	. . .	. .	. . .	. . .	. . .	. . .	. . .	. . .
125	. .	. .	. . .	. .	. .	. .	. .	. .	200	300	400	300	400	800	1200	300	400	1000	1200	. . .	. .	. . .	. . .
150	300	300	300	. .	. .	. .	. .	. .	300	300	400	300	400	800	1200	300	400	1000	1200	. . .	. .	. . .	. . .
175	.	.	. . .	. .	. .	. .	. .	. .	. .	. .	. .	300	400	800	1200	300	400	1000	1200	. . .	. .	. . .	. . .
200	. .	.	. .	. .	. .	. .	. .	. .	. .	. .	. .	400	600	1000	1200	400	600	1000	1200	. . .	. .	. . .	. . .
225	.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	400	600	1000	1200	400	600	1000	1200	. . .	. .	. . .	. . .
250	.	. .	.	. .	.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	400	600	1000	1200	. . .	. .	. . .	. . .
300	. .	.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	600	800	1000	1200	600	800	1200	1600
350	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	600	800	1200	1600	600	800	1200	1600
400	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	600	1000	1200	1600	600	800	1200	1600
450	. .	.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	600	1000	1200	1600	600	800	1200	1600
500	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	800	1200	1200	1600	800	1200	1200	1600
600	. .	.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	800	1200	1200	1600	1000	1200	1200	1600
700	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	1200	1600	1600	2000
800	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	1200	1600	1600	2000
1000	.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	1600	2000	1600	2000
1200	.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	1600	2000	1600	2000

Fuse data based on systems having the following maximum available current:

①600 Volts ac, 65,000 amperes symmetrical (TECL Limiter not used)

②240 Volts ac, 200,000 amperes symmetrical (100,000 with Class K-1 fuses).

③600 Volts ac, 200,000 amperes symmetrical (100,000 with Class K-1 fuses).

④Minimum fuse ratings do not apply to the solid-state breakers.

⑤120 Volts ac, 65,000 amperes symmetrical.

Accessories and Modifications

Internally Mounted—Signaling and Controlling Functions

SHUNT TRIP

Remote Tripping — Trips breaker by remote control. Trip coil de-energized when breaker opens.

Device meets UL requirements for operation at 55% of rated voltage for service on ground-fault system. Does not include Q-Line.

HEAVY-DUTY UNDERVOLTAGE RELEASE

Automatically trips breaker when an undervoltage or power outage occurs. Special PUSH-TO-TRIP/PUSH-TO-RESET button is used to manually trip or reset the breaker .

The Heavy-duty Undervoltage Release is designed for applications where repeated UVR trips are anticipated. The manual reset features prevents breaker reset or possible contact kiss until power is available and reset button is depressed.

Mounts in right pole of breaker only. Must be factory installed to incorporate special breaker frame modifications.

UNDERVOLTAGE RELEASE

Provides protection against voltage drops (trips breaker at 30-60% rated voltage). Can be used for tripping with NC pushbutton or relay in series with UVR coil current.

TIME-DELAY UNIT — FOR USE WITH UVR

Prevents nuisance tripping due to momentary loss of voltage. Separate externally mounted unit has 120 volt ac input and 125 volt dc output with delay adjustable from 0.1 to 0.5 seconds. Used in conjuction with 125 volt dc undervoltage release which must be ordered separately.

AUXILIARY SWITCHES

These switches operate ON-OFF indicating lights relay and control circuits as a function of breaker ON-OFF position.

Switch is SPDT rated 6 amperes at rated volts ac: ½ ampere at 125 volts dc; ¼ ampere at 250 volts dc.

BELL-ALARM SWITCHES

These switches are used to indicate a breaker trip. Will not activate when breaker is manually operated.

Switch is SPDT, rated 5 amperes at 240 volts ac noninductive.

THREE-COIL SHUNT TRIP

Provides single-phase protection for fuse and circuit-breaker combinations, factory installation only. Suitable for system voltages of 208 to 600 volts ac.

DUMMY TRIP

Dummy trip is required when internally mounted accessories are ordered for nonautomatic circuit interrupters.

COMBINATION ACCESSORIES

Unique design combines two standard accessories for mounting in VersaTrip® and SelecTrip™ breakers only. Must be factory installed.

Accessories and Modifications

Internally Mounted—Signaling and Controlling Functions

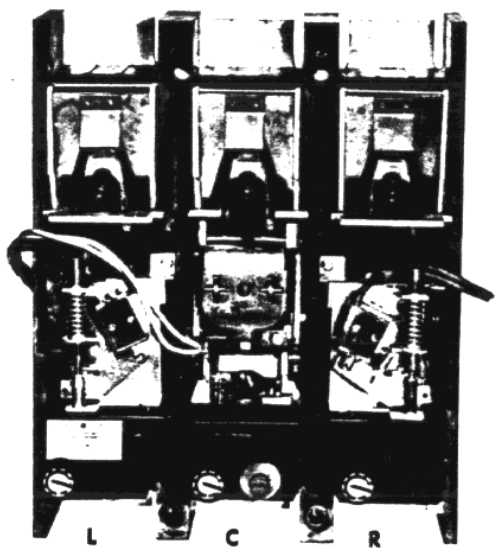
ORDERING INSTRUCTIONS

Internally mounted accessories can be either factory or field installed in all interchangeable-trip breakers and should be factory installed in all non-interchangeable (sealed) breakers. When factory installed, all devices are UL listed except as noted. If field installed by the customer, the UL listing is voided.

Refer to Table 1 for accessory installation combinations and possible mounting and lead-exit positions per breaker type "Mounting position" refers to left, center or right-hand pole as seen when facing the front of the breaker. Control leads may exit the breaker from its side or back (S or B) when so noted.

For field installation, order the accessory by the base number only. Where this number ends in "R" or "L" right-hand and left hand devices are physically different. Specify only one suffix letter per accessory catalog number when option is available.

For factory installation, specify breaker Cat. No. in addition to accessory base number, plus appropriate suffix. (Example: Cat. No. TJK436125WL, TJKUVA1LS, TJKSTA12RS specifies a Type TJK breaker with factory-installed undervoltage release in the left-hand pole and shunt trip in right-hand pole with all leads brought out on the side of the breaker.)



Pole Positions
L—Left
C—Center
R—Right

Lead Wire Exit
S—Side
B—Back

J Frame circuit breaker with internal accessories mounted in each pole (Shown with front cover removed.)

A dummy trip is required for mounting internal accessories in nonautomatic circuit breakers.

TABLE 1. Accessory Installation and Listing

Check or UL marks indicate possible accessory mounting and lead exit position.

A "UL" symbol designates availability of a UL listed accessory-breaker combination.

A check (√) symbol designates availability of a non-UL listed accessory-breaker combination.

Breaker Type	Bell-alarm Switch					Auxiliary Switch or Shunt Trip				Undervoltage Release				Combination Accessories				Three-coil Shunt Trip				Total No. of Accessories Within Any One Circuit Breaker
	Mounting (Pole)			Lead Exit		Mounting (Pole)		Lead Exit		Mounting (Pole)		Lead Exit		Mounting (Pole)		Lead Exit		Mounting (Pole)		Lead Exit		
	L	C	R	S	B	L	R	S	B	L	R	S	B	L	R	S	B	L	R	S	B	
TEB, TEC, TED, THED TB1③	①UL		UL	UL	√	①UL	UL	UL	√		UL	UL	√						UL	UL		2-p Cir Bkr—Any One 3-p Cir Bkr—Any Two-except UVR and 3-coil Shunt Trip
TFC, TFJ, TFK, THFK			UL	UL		UL	UL	UL	√	UL	UL	UL	√					UL		UL		Any Two
TJC, TJD, TJJ, TJK, THJK TKC, TKM, THKM, TB4③ TBC4③, TB6③, TBC6③ TB8③, TBC8③		UL		UL		UL	UL	UL	√	UL	UL	UL	√					UL		UL		Any Two plus Bell Alarm
THJS, THJSS, TJR, THJR, THKS, THKSS, TKR④, THKR④		UL		UL	√	UL		UL	√	UL		UL	√	UL		UL	√	UL		UL	√	Any One plus Bell Alarm
TKR⑤, THKR⑤		UL		UL	√		UL	UL	√		UL	UL	√		UL	UL	√		UL	UL	√	Any One plus Bell Alarm

TABLE 2. Accessory Lead Color Coding

All accessory contacts are shown with breaker in an overcurrent tripped condition.

Bell Alarm System	Purple Yellow Brown	Shunt Trip	Black Black
Auxiliary Switch	Red White Brown/white⑥	Three-coil Shunt Trip	Red Brown/white⑥ Blue White Yellow Black
Undervoltage Release	Blue Blue		

* Trademark of General Electric Company.

①Not available for 2-pole TEB, TED.

②UL listed at 200,000AIC without internal accessories. With internally mounted accessories 100,000 AIC.

③Not UL listed.

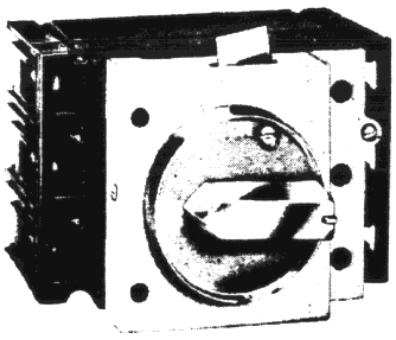
④Applies to SelecTrip™ with integral ground fault.

⑤Applies to SelecTrip without integral ground fault.

⑥Formerly green.

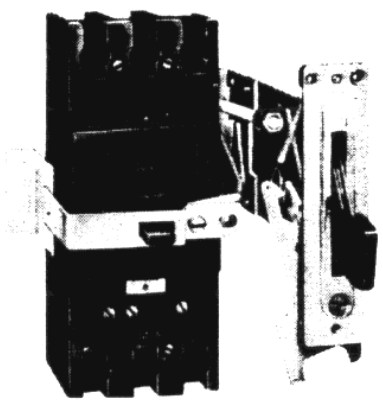
Accessories and Modifications

Handle Operating Mechanisms



TDR INTEGRAL HANDLE MECHANISMS

Rotary operating handles mount directly to the breaker. Operates through door. Mechanical interlock prevents unauthorized opening of enclosure when handle is ON. Locking hasp accommodates up to three padlocks. Suitable for use with NEMA 1, 12 and 12K enclosures. Available for motor circuit protectors or molded-case breakers through 1200 amperes.

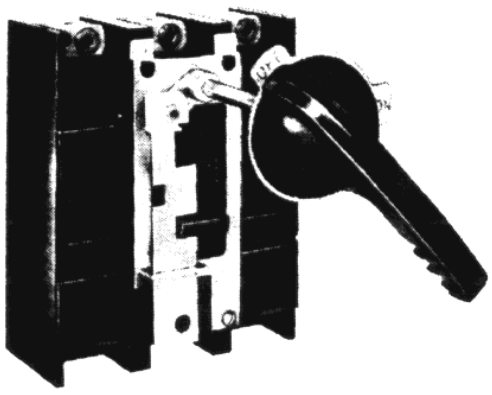


TDF SAFETY HANDLE MECHANISM — Complete Kits

Each TDF kit has been packaged to meet the majority of applications. The parts included in the kit meet the requirements for right-hand, variable-depth, flange-mounted. NEMA 12 with interlocked door-closing hardware.

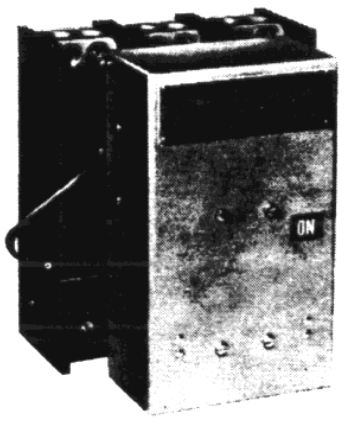
These kits offer features of special interest to:

Machine Tool Manufacturers
Control Panel Builders
Electrical Equipment Builders



TDM HANDLE-OPERATING MECHANISMS, DOOR-MOUNTED

Operating shaft for shallow mounting, suitable for pendulum operation only. Extended type shaft suitable for either up-down or pendulum handle operation.



MOTOR-OPERATED MECHANISMS — Mounted externally on front — Not UL listed

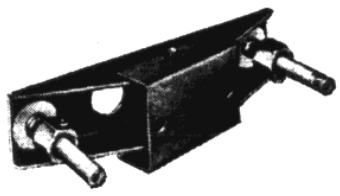
Remote Operation — Motor-operated Mechanism opens, closes or resets a breaker by remote control. For automatic reset, order a one-element auxiliary switch. Customer to supply an ON push-button unit, SPDT type.

LUGS, LINE SHIELDS, COVERS AND BUS CONNECTOR

Accessory	Wire Size	For Use With	Catalog Number
Copper Only Lugs With Follower and Extra Plating	#14–2/0	E150 (thru 150A) ④	TC012
	#1–300 MCM	TQD (100–225A) ③	TCT25
	#14–300 MCM	F225 { Load end	TC024
		F225 { Line end	TC026
	(1) 6–600 MCM or (2) 2/0–250 MCM	J400	TC043
	(2) 250–350 MCM	J600	TC063
	(1) 1/0–600 MCM or (2) 1/0–200 MCM	K1200 (125–400A)	TC041
	(2) 2/0–500 MCM	K1200 (500–600A)	TC061
	(3) 250–500 MCM	K1200 (700–1000A)	TC081A
	(4) 250–400 MCM	K1200 (1200A)	TC0121
Copper-Aluminum Lugs	#14–1/0	TQC (15–100A)	TQAL3
	#1–300 MCM	TQD	TCAL25
	#14-8	E150 (15-30A)	TCAL14
	#14–2/0	E150 (110, 125A)	TCAL12
	#2–3/0	E150 (110-150A)	TCAL15
	#4–300 MCM	F225 { Load end	TCAL24
		F225 { Line end	TCAL26
	(1) 6–600 MCM or (2) 2/0–250 MCM	J400, J600 (thru 400A) TJD	TCAL43
	(2) 250–350 MCM CU or (2) 350–500 MCM AL	J600 (450–600A)	TCAL63
	(1) 750 MCM	J400, TJD	TCAL47
	(2) 1/0–250 MCM or (1) #4–600 MCM	K1200 (300–450A)	TCAL41
	(2) 2/0–500 MCM	K1200 (500–600A)	TCAL61
	(3) 250–500 MCM	K1200 (700–800A)	TCAL81
	(4) 250–500 MCM	K1200 (1000–1200A)	TCAL121
	(3) 500–750 MCM ⑤	K1200	TCAL122 ⑤
Line Shield	.....	TEB, TEC, TED, THED	TEDLS
	.....	TF	788A384P1
	.....	TFJ and TFK	TFKLS
	.....	TJJ and TJK	TJKLS
Lug Cover, TKM Breaker (two per breaker)	.....	125–400A lugs	455C182P1
	.....	500–1000A lugs	455C235P1
	.....	1200A lugs	455C592P1
Connector (Back Strap)	.....	TKM	TKMC1

①Includes TEB, TED and THED.
②For proper clearance between poles, a short and long stud must be assembled adjacent to each other.
③Does not have follower.
④Includes TEB, TEC, TED and THED.
⑤Not UL Listed.

MECHANICAL INTERLOCKS (Walking-beam Type)—Mounted externally



Mechanical interlock for J600 and K1200 frames

A walking-beam type external link between two side-by-side breakers. Permits only one breaker to be ON at a time; however, both breakers can be OFF at the same time. Voids UL listing of circuit breakers.

Breaker Frame		Breaker Spacing in Inches (Center Line to Center Line)	Panel Thickness in Inch
Type	Poles		
E150(Ex. TB1)	2 or 3	4 ¼	¼, ½, 1
TB1			
F225	2 or 3	4 ¼	¼, ½, 1
J600, TB4	2 or 3	8½	⅜, 1
K1200, TB6, TB8	2 or 3	8½	¾, 1

PADLOCKING DEVICES

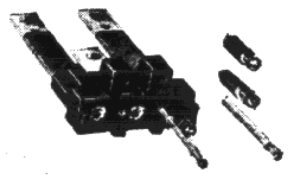
To padlock individually enclosed panelboard- and switchboard-mounted breakers:

Breaker
TQC
TQD
TQDL
TQB, TQL
E150 Line
F225 Line
J600 Line
K1200 Line

HANDLE-LOCKING, HANDLE-EXTENSION DEVICES

Breaker	Device
TQB, TQC, TQL	Handle locking
TQB, TQC, TQL	Snap-on handle tie
TQL	Snap-on handle tie (solid)
E 150 Line	Handle locking
E 150 Line	Handle locking, fE 1-p
F 225 Line	Handle locking
K 1200 Line	Handle extension

PLUG-IN MOUNTING BASE ASSEMBLY



Plug-in mounting base with hardware Cat. No. TF23PD2 shown

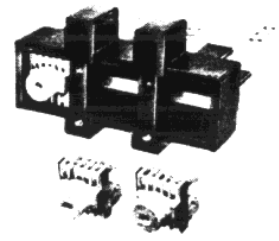
Each plug-in mounting base assembly includes all mounting hardware, studs, and male or female connectors for attachment to one end of breaker. Studs are of different length so by using proper combinations of PD1 and PD2 units, adequate electrical spacing will be assured between adjacent breakers, i.e., a short-long-short (SLS) unit must be used adjacent to a long-short-long (LSL) unit.

Two-pole breakers of the E 150 line and old TF require an open-long-short (OLS) unit on one end of the breaker and a short-long-open (SLO) on the other since these breakers are built with the normal left pole missing while the mounting bases are built from standard three-pole molded supports.

All other two-pole breakers are basically three-pole devices with the center pole missing. When these breakers are to be mounted side by side, a short-open-short (SOS) unit must be used on one end and a long-open-long (LOL) on the other.

Horizontal studs are normally supplied with the flat surface of studs at right angles to the long axis of the breaker. If vertical studs are desired, substitute "C" for "D" in the catalog number, i.e., TE13PC1 (vertical) for TE13PD1 (horizontal).

The optional mounting plate (TMP1, etc.), supplied at no cost when ordered with a pair of plug-in mounting bases. It accurately locates and supports the line and load plug-in mounting-base assemblies, provides convenient means to attach the entire unit to a metal structure, and serves as a deadfront barrier.



Plug-in mounting base Cat. No. TK123PD2A shown

Plug in Mounting Bases—2 Required Per Breaker

Amp Rating	For C/B Frame	No. Poles	Stab Configuration PD1	Stab Configuration PD2
100	E 150①②	2 3	OLS SLS	SOL LSL
	TB1	2 3	SOS SLS	LOL LSL
	TF 100	2 3	OLS SLS	SLO LSL
225	F 225	2 3	SOS SLS	LOL LSL
400	J 400	2 3	SOS SLS	LOL LSL
	TB4, TJS, TJR, THJR	2 3	SOS SLS	LOL LSL
600	J 600, TJS③, TJR③, THJR③	2 3	SOS SLS	LOL LSL
	K 1200, TKR③, THKR③	2 3	SOS SLS	LOL LSL
	TB6, THKS	2 3	SOS SLS	LOL LSL
800	K 1200, TKR③, THKR③	2 3	SOS SLS	LOL LSL
	TB8, THKS	2 3	SOS SLS	LOL LSL
1000	K 1200, THKS④, TKR③, THKR③	2 3	SOS SLS	LOL LSL
1200	K 1200, THKS④, TKR③, THKR③	2 3	SOS SLS	LOL LSL

MOUNTING SCREW KIT

Required with plug-in mounting base assembly when used with motor-operating mechanisms and TDR integral-handle kits. Furnished no charge when ordered with base.

FOR MOTOR-OPERATING MECHANISM

For Breaker Type
TFJ, TFK TJJ, TJK, TB4 TKM, TB6, TB8

FOR TDR INTEGRAL HANDLE

TFC, TFJ, TFK
TEC, TED TJC, TJJ, TJK, TB4, TBC TKC, TKM, TB6, TB8 TBC6, TBC8

PLUG-IN BASE INTERLOCK

Factory Installed Only

An optional interlock is available for use with plug-in bases and mounting plates. This switch is mounted on the back of the breaker and actuated by contact with the mounting plate. Should an attempt be made to unplug the breaker, the interlock breaks an undervoltage circuit, tripping the breaker. The interlock is handwired through the undervoltage device to the line end plugs.

To order, specify proper interlock from table on the right. The Catalog Number listed includes the interlock, undervoltage release and factory installation on separately ordered circuit breaker.

Breaker Frame	Line Volts Ac Only
E 150	240 480 600
F 225	600
J 600	600
K 1200	600

①Includes TEB, TEC, TED and THED.
②Order 3-pole base for use with 2-pole HI-BREAK® breaker.
③TJS and TJR breakers must use mounting plate TMP6.
④THKS breaker must use mounting plate TMP7.
⑤SelecTrip™ breakers with integral ground fault must use mounting plate TMP7.

Accessories and Modifications

Drawout and Mounting Hardware
J600 and K1200 Ampere Frames

DRAWOUT ASSEMBLY

The drawout mechanism is designed for heavy duty applications in load center unit substations, motor control centers and switchboards in industrial, commercial, and institutional buildings. It permits rapid examination and maintenance of circuit breakers without having to deenergize the switchboard bus structure.

All drawouts have four discreet positions: engaged, test, disengaged and fully withdrawn. Provisions are provided for padlocking the carriage in each of these positions. Mechanical interlocking is also built in to prevent the movement of a closed breaker into or out of the engaged or test positions. Each breaker position is clearly identified.

The racking handle is an integral part of the drawout frame. All main and secondary contacts are self-aligning. The carriage may be hand rotated 180 degrees on the rails for contact maintenance or inspection.

All drawouts (except where noted otherwise) are UL listed.

ORDERING INFORMATION

The drawout may be ordered as a complete assembly, carriage only or stationary frame only. The complete assembly consists of stationary frame and carriage. The carriage must be factory assembled to the circuit breaker. Breakers and breaker related options are ordered separately.

When the complete drawout assembly or carriage only is ordered with the breaker, secondary disconnects are supplied as required for control and accessory wiring. The breaker will be factory installed and unit shipped complete unless otherwise specified.

Secondary disconnects are not supplied when drawout frames are ordered separately. They are, however, supplied as required for carriage and breaker.

Vertical bus connectors are provided as standard. For horizontal connectors, add suffix "H" to catalog number.

When ordering the 100% rated drawout specify the standard UL listed VersaTrip® Breaker. This combination is UL listed, 100% rated. The 100% rated VersaTrip Breaker will be rejected by the drawout construction.

BYPASS SWITCH

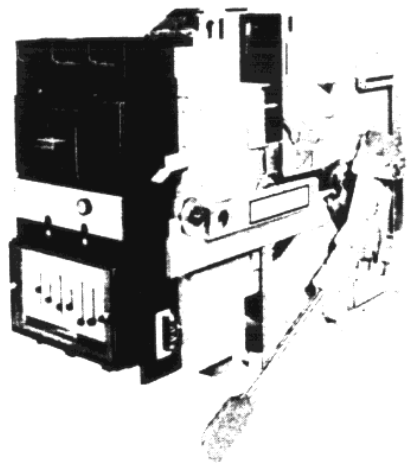
This switch is used to provide control circuit continuity or downstream signalling when drawout is disengaged. It consists of a switch assembly which mounts to the stationary frame and an actuator which mounts on the carriage. Each switch assembly consists of four SPDT (AB type) elements wired and pre-assembled on a mounting bracket. Switch is rated 5 amperes at 240Vac, 1/2 ampere at 125Vdc and 1/4 ampere at 250Vdc.

SECONDARY DISCONNECTS

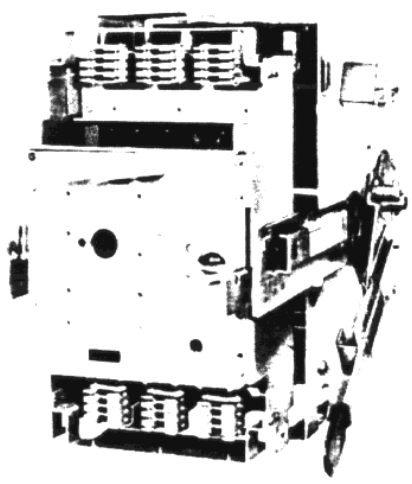
Available in blocks of 8 circuits each, these disconnects are used for control and accessory wiring.

A maximum of 2 blocks (16 circuits) may be used on drawout Type TKMDO3. All other drawouts will accept up to 3 blocks (24 circuits).

Each secondary disconnect kit includes the stationary as well as moveable contact blocks. Two gold contacts are supplied on each block to connect the neutral CT.



Type THJS VersaTrip® in Drawout Assembly



Carriage shown rotated 180° on rails

CORROSION PROOFING, METAL PARTS OF CIRCUIT BREAKERS

Treatment	Type Atmosphere
Tin Plate	Sulphate
Irridite	Salt Laden

FUNGUS, MOISTURE-PROOFING

Factory modified: add suffix FP to Cat. No. and price adder below to price of breaker

Poles	Q Line	E 150	F 225	J 600	K 1200	TB-1	TB-4	TB-6, -8

SPECIAL CALIBRATION

Q Line and 600 volts, Types E150, F225, J600, K1200 are ambient compensating as a standard feature. They are calibrated to carry full load at 50 C and meet UL tripout requirements at 25 C and 40 C.

Other breakers will be calibrated for 50 C ambient at no additional charge.

Order these breakers by inserting "C5" in the catalog number preceding the last 3 digits; i.e., TED134C5100.

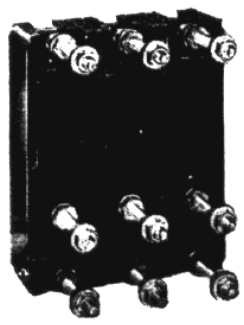
Most breakers can be factory adjusted for special thermal, magnetic or frequency calibration. Consult Company for availability.

BACK-CONNECTED STUDS

Studs are supported by sub-base, but make positive contact with each line and load terminal. Once fastened to sub-base, a stud no longer has to be removed to remove or install breaker. Requires insulated mounting plate.

Line	Amp	Length, Back of Breaker in Inches	Cat. No.	Std Pkg and Wt/Pkg
E150 ①② TB1	50	2 25/32 (short)	TEF1	1 6 oz.
		4 13/32 (long)	TEF2	
	100	3 13/32 (short)	TEF3	
		5 25/32 (long)	TEF4	
F 225③	225	2 23/32 (short)	TFK1	1 1 lb
		5 31/32 (long)	TFK2	
J 600 TB4	400	5 17/32	TJK1	2 2½ lb
	600	5 17/32	TJK2	
K 1200 TB6 TB8	600	5½	TKM10	2 3 lb
	1200	5½	TKM11	
		8	TKM12	

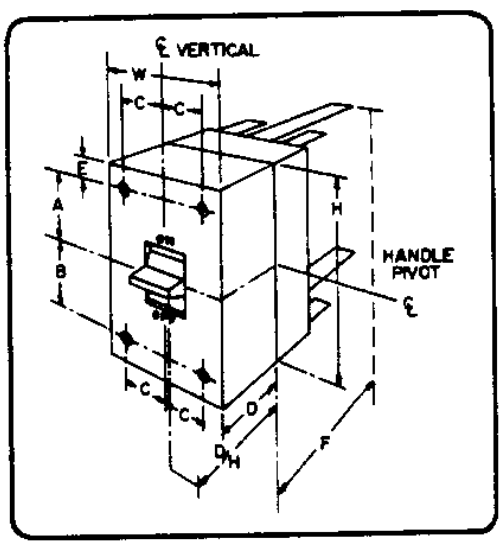
CENTER STUDS FOR BREAKERS USED ON DUAL-VOLTAGE SYSTEMS



Breaker with center and back-connected studs

Breaker can be supplied with center stud connections permitting operation at both voltages with one trip unit rating. At the higher voltage, connection is made at the line and load terminals only and thus the trip unit carries all the load current. At the lower voltage, where the current is double, connection is also made through the center studs permitting half the current to bypass the trip unit. At either voltage, full load current is carried by the breaker contacts.

DIMENSIONS
(For Estimating Only)

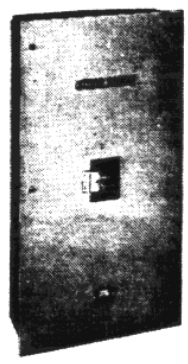
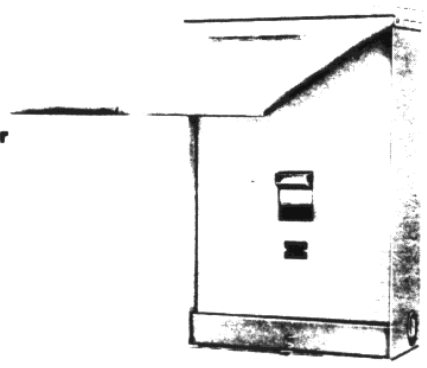
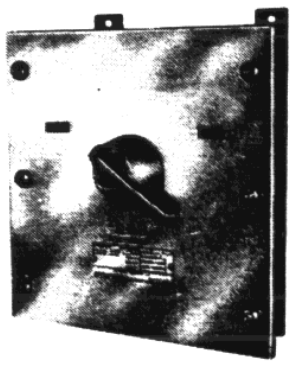


	Breaker Type	Poles	Dimensions in Inches W	H	D	D/H Max	A	B	C	E	F ①
Q 125	THQL, THHQL, THQAL, THHQAL, THQB, THHQB, TXQB, TXQL	1	1	3 9/32	2 3/8	2 15/16					
		2	2								
		3	3								
	THQC, THHQC, TXQB, TXQC, TXQL, THQE	1	1	3 3/8	2 3/8	2 15/16					
		2	2								
		3	3								
Q 225	TQD, THQD	2	2 3/4	6 9/16	2 3/8	3 7/16	2 7/16	2 7/16	....	27/32	
		3	4 1/8						1 1/16		
	TQDL, THQDL	2	2	6 1/16	2 3/8	2 15/16					
E 150	TE	1	1 3/8	6 1/16	★3 3/8	4 3/32	2 41/64	2 15/64	....	23/32	
	TEB, TEC ①	2	2 3/4						....		
	TED, THED ②	3	4 1/8						1 1/16		
F 225 ③	TFC, TFJ, TFK, THFK	2, 3	4 1/8	10 1/8	★4 1/16	5 1/2	3 1/8	3 1/8	1 1/16	1 3/16	
J 600 ③	TJC, TJJ, TJK4, TJK6, THJK, TJD	2, 3	8 1/4	10 1/8	3 13/16	5 1/2	3 13/16	3 13/16	1 3/8	1 3/16	
K 1200 ④	TKC, TKM8, THKM8, TKM12, THKM12	2, 3	8 1/4	15 1/2	5 1/2	7 1/8	8 9/16	5 11/16	1 3/8	5/8	
TRI-BREAK ⑤	TB1	2, 3	4 1/8	10 5/16	3 3/8	4 5/32	2 21/32	6 5/32	1 1/16	23/32	
	TB4	2, 3	8 1/4	16 1/8	4 1/2	5 3/8	3 15/16	9 13/16	1 3/8	1 3/16	
	TB6, TB8	2, 3	8 1/4	21 3/8	5 3/8	7 1/16	8 9/16	12 1/16	1 3/8	5/8	
VersaTrip ⑤	TJS	3	8 1/4	16 1/8	4 1/2	5 3/8	3 15/16	9 13/16	1 3/8	1 3/16	
	TJSS	3	8 1/4	16 1/8	4 1/2	5 3/8	3 15/16	9 13/16	1 3/8	1 3/16	10 9/16
	THKS	3	8 1/4	21 3/8	5 3/8	7 1/16	8 9/16	12 1/16	1 3/8	5/8	
	THKSS	3	8 1/4	21 3/8	5 3/8	7 1/16	8 9/16	12 1/16	1 3/8	5/8	10 9/16
SelecTrip *	TJR, THJR	3	8 1/4	16 1/8	4 1/2	5 3/8	3 15/16	9 13/16	1 3/8	1 3/16	
	TKR, THKR Without Integral Ground Fault	3	8 1/4	15 1/2	5 1/2	7 1/8	8 9/16	5 11/16	1 3/8	5/8	
	TKR, THKR With Integral Ground Fault	3	8 1/4	21 3/8	5 3/8	7 1/16	8 9/16	12 1/16	1 3/8	5/8	

①With current limiter, add 3¼" to "H" dimension.
②Two-pole THED is in a 3-pole frame.
③With current limiter, use TB4 frame size.
④With current limiter, use TB6, TB8 frame size.
⑤"F" dimension applies only to Type TJSS and THKSS breakers.

Circuit Breaker Enclosures

Selection Guide

ENCLOSURES		CIRCUIT BREAKER TYPE
NEMA Type 1, handle-thru-cover, surface or flush mounting		THQL, THHQL, THQAL, THHQAL, TXQL, THQL-GF, TQD, THQD, TJD, TEB, TED, THED, TFJ, TFK, THFK, TJJ, TJK, THJK, TKM, THKM
NEMA Types 12K and 12, rotary handle integral with breaker		TEB, TED, THED, TB1, TB4, TB6, TB8, TFJ, TFK, THFK, THJS, TJD, TJR, THJR, TJJ, TJK, THJK, THKS, TKR, THKR, TKM, THKM
NEMA Type 3R, Outdoor raintight		THQL, THHQL, THQAL, THHQAL, TXQL, THQL-GF, TQD, THQD, TJD, TEB, TED, THED, TFJ, TFK, THFK, TJJ, TJK, THJK, TKM, THKM
NEMA Types 4 and 5, stainless steel, water-tight, dust-tight		TEB, TED, THED, TFJ, TFK, THFK, TJD, TJJ, TJK, THJK

Circuit Breaker Enclosures

10-1200 Amperes **240-600 Volts Ac, 125-250 Volts Dc**

ENCLOSURE TYPES

UL Listed Suitable for use as Service Equipment except as noted.

Breaker Type	Max Amp Rating	Poles	NEMA 1 ① Indoor	NEMA 3R ② Outdoor	NEMA 12 ③ Oil-tight/Dust-tight	NEMA 4/5 ④ Stainless Steel	Neutral Cat. No.
THQL	70 100 125	2, 3 2, 3 2	TQL70F, S TQL100F, S TL212F, S	TQL70RH TQL100RH TL212RH			Included
THQC	100	2, 3	TQC100F, S	TQC100RH			Included
TEB, TED, THED	100	2, 3	TE100F, S	TE100RH	TE100D, J ⑪	TE100CS ⑧	Included
TED, THED	150	2, 3	TE150F, S	TE150RH			Included
TB1	100	2, 3			TB100J		Included
TQD THQD	225 225	2 2, 3	TQD225F, S	TQD225NRH TQD225RH			Included
TFJ TFK, THFJ TJ32	225	2, 3	TF225F, S	TF225R or RH	TF225D or J TF225MJ ⑤	TF225CS	TNI225
TJD TJJ, TJK, THJK	400	2, 3	TJ400F, S	TJ400R	TJ400D or J TJ600MJ ⑤	TJ400CS	TNI400
TB4	400	2, 3			TB400J		TNI400
TJK, THJK	600	2, 3	TJ600F, S	TJ600R	TJ600MJ ⑤	TJ600CS	TNI600
TJS, TJR ⑩ THJR ⑩	600	3			TJS600J or MJ ⑤		TNI400 ⑨ TNI600 ⑨
TB6	600	3			TB600J		TNI400 TNI600
TB8	800	3			TB800J TB800JM ⑤		TNI400 TNI600 TNI800
TKMA THKMA	1200	2, 3	TK1200F, S	TK1200R	TK1200J TK1200MJ ⑤ TK1200J or MJ ⑤		TNI400 TNI600 TNI800 TNI1200
TKR ⑥ THKR ⑥					TKR1200J or MJ ⑤		
THKS, TKR ⑦ THKR ⑦	1200	3			TKS1200J or MJ ⑤		TNI800 ⑨ TNI1200 ⑨

INSULATED GROUNDABLE NEUTRALS ONLY

Neutral Cat. No.	Max. Amp Rating	Lug Wire Size (CU-AL)	Ship. Wt Lb
TNI100	100	#14-1/0 CU #12-1/0 AL	1
TNI225	225	#1-300 MCM	1
TNI400 TNI400G	400	(2) #1/0-250 MCM or (1) #4-600 MCM	4
TNI600	600	(2) #2/0-500 MCM	5
TNI600G	600	(2) #4-600 MCM	5
TNI800	800	(3) 250-500 MCM	5
TNI800G	800	(6) #1/0-250 MCM or (3) #4-600 MCM	6
TNI1200	1200	(4) 250-350 MCM CU (4) 350-500 MCM AL	6
TNIC1200	1200	(4) 250-400 MCM CU Only	7
TNI1200G	1200	(4) #4-600 MCM	7

①**F-flush; S-surface.**

②**Cat. Nos. with Suffix "RH" have top endwall KO for Universal Outdoor Hub. Suffix "R" devices have blank top endwall for use with Myers-type conduit hubs. See Section 7656, page 4 for hub ordering details.**

③**Suffix "D" has KO's (NEMA 12K). Suffix J does not have KO's; use Myers-type conduit hubs on Section 7656, page 4.**

④**Not UL listed.**

⑤**For circuit breakers with motor-operated mechanism. Not UL listed.**

⑥**SelecTrip™ breakers without ground fault only.**

⑦**SelecTrip breakers with ground fault only.**

⑧**Neutral not included; if required, order TNI100.**

⑨**For VersaTrip® and SelecTrip breakers with the 3-phase, 4-wire ground fault option, add suffix "G" to neutral Cat. No.**

⑩**Not available with integral ground fault.**

⑪3-Pole only.

Circuit Breaker Enclosures

Dimensions

NEMA 1 (See Fig. 1)

Cat. No.	Dimensions in Inches A	B	C	D	E	F	Ship. Wt Lb	Outlines
TQC100F①	13 1/16	13 1/16	7 15/16	7 15/16	4 3/8	3 15/16	7	5668676
TQC100S①	12	12	6 7/8	6 7/8	4 3/8	3 15/16	7	
TQD225F①	18 1/4	18 1/4	9 15/16	9 15/16	5 15/16	5 1/4	11	455C860 Sh 2
TQD225S①	17 1/4	17 1/4	8 7/8	8 7/8	5 15/16	5 1/4	11	
TQL70F①	10 1/8	10 1/8	6 3/4	6 3/4	4	3 1/4	5	5668196
TQL70S①	9 1/16	9 1/16	5 11/16	5 11/16	4	3 1/4	5	
TQL100F①	13 1/16	13 1/16	7 15/16	7 15/16	4 3/8	3 15/16	7	5668676
TQL100S①	12	12	6 7/8	6 7/8	4 3/8	3 15/16	8	
TE100F①	16 1/8	16 1/8	9	9 7/16	5 1/2	4 3/4	9.5	455C656
TE100S①	14 11/16	14 11/16	8	8	5 1/2	4 3/4	9.5	
TE150F①	18 1/4	18 1/4	9 15/16	9 15/16	5 15/16	5 1/4	11	455C860 Sh 2
TE150S①	17 1/4	17 1/4	8 7/8	8 7/8	5 15/16	5 1/4	11	
TF225F	21 3/4	21 3/4	11 1/2	11 1/2	7	6 5/16	18	455C597
TF225S	21 3/8	20 11/16	10 1/2	10 1/2	7	6 5/16	18	455C597
TJ400F	23 3/8	23 3/8	16 3/8	16 3/8	7 1/4	6 3/8	24	455C619
TJ400S③	22 7/8	22 7/8	16 1/4	15 1/2	7 1/4	6 3/8	24	455C619
TJ600F	28 5/16	28 5/16	18 1/2	18 3/8	8 15/16	8 1/4	28	5668619
TJ600S③	26 3/4	26 3/4	17 13/16	17 3/16	8 15/16	8 1/4	28	5668620
TK1200F	47 3/4	47 3/4	23 5/16	23 5/16	9 1/2	8 5/8	60	794A563
TK1200S③	46 1/8	46 1/8	22 3/8	22	9 1/2	8 5/8	60	794A563

NEMA 3R (See Fig. 2)

Cat. No.	Dimensions in Inches A	C	D	E	F	Ship. Wt Lb	Outlines
TQC100RH	13 1/4	7 7/8	7 7/8	5 3/16	5 3/16	8	791A902 Sh 2
TE100RH	13 1/4	7 7/8	7 7/8	5 13/16	5 3/16	10	791A902 Sh 2
TE150RH	17 1/2	10 3/16	9 15/16	6 1/8	5 3/8	12	5668742 Sh 2
TF225R	20 9/16	12 13/16	12 9/16	7	6 5/8	25	455C595
TF225RH	21	12 13/16	12 9/16	7	6 5/8	25	455C595
TJ400R	28 7/8	18 1/8	18 1/8	8 5/8	8 1/16	52	791A627
TJ600R	28 11/16	18 5/16	18 1/16	9 3/8	9 3/16	52	792A932
TK1200R	40 1/8	23 1/8	22 7/8	10 5/16	9 5/16	92	794A564
TQD225RH	17 1/2	10 3/16	9 15/16	6 1/8	5 3/8	12	5668742 Sh 2
TQL70RH	7 1/8	7 1/4	7	5 1/16	4 7/16	8	5658741 Sh 2
TQL100RH	22	7 7/8	7 7/8	5 13/16	5 3/16	8	791A902 Sh 2

NEMA 4, 5 (See Fig. 3)

Cat. No.	Dimensions in Inches A	B	C	E	F	Ship. Wt in Lb	Outlines
TE100CS	15	13 5/16	11 7/8	8 1/4	6 1/4	16	455C571
TF225CS	20 1/2	18 13/16	14 1/2	9 1/8	7 1/8	22	
TJ400CS	24 1/2	22 13/16	17 3/8	9 1/8	7 1/8	32	
TJ600CS	28 1/2	26 13/16	19	8 1/8	7 1/8	38	

NEMA 12 without KO's (See Fig. 4)

Cat. No.	Dimensions in Inches A	B	C	D	E	F	Ship. Wt in Lb	Outlines
TB100J③	20 3/8	18 5/8	. . .	8	5 11/16	4 11/16	11	5668440
TB400J	34 5/16	32 3/4	17 13/16	17 3/16	9 13/16	8 7/16	36	5668999
TB400MJ	34 5/16	32 3/4	17 13/16	17 3/16	. . .	8 7/16	37	5668999
TB800J	54 1/2	53 1/16	22 9/16	22 1/8	10 15/16	10 3/16	67	5668996
TB800MJ	54 1/2	53 1/16	22 9/16	22 1/8	. . .	10 3/16	67	5668996
TE100J③	16 7/16	14 11/16	8	8	5 13/16	4 13/16	9	139C3974 Sh 3
TF225J③	22 7/16	20 11/16	10 1/2	10 1/2	7 5/16	6 5/16	18	567B101
TF225MJ③	22 7/16	20 11/16	. . .	10 1/2	. . .	8 3/8	18	567B101
TJ400J	24 13/16	22 7/8	16 1/4	15 1/2	7 3/4	6 5/16	25	139C3974 Sh 3
TJ600J	28 1/4	26 3/4	17 13/16	17 3/16	9 5/8	8 3/16	27	5668622
TJ600MJ	34 5/8	32 3/4	17 13/16	17 3/16	. . .	8 7/16	37	5668999
TJS600J	34 5/16	32 3/4	17 13/16	17 3/16	9 13/16	8 7/16	37	5668999
TJS600MJ	34 5/16	32 3/4	17 13/16	17 3/16	. . .	8 7/16	37	5668999
TK1200J	48 1/8	46 5/8	22 5/8	22	9 5/8	8 7/16	65	456C134
TK1200MJ	54 1/2	53 1/16	22 9/16	22 1/8	. . .	10 3/16	67	5668996
TKS1200J	54 1/2	53 1/16	22 9/16	22 1/8	10 15/16	10 3/16	67	5668996
TKS1200MJ	54 1/2	53 1/16	22 9/16	22 1/8	. . .	10 3/16	67	5668996
TKR1200J	48 1/8	46 5/8	22 1/2	22	9 5/8	8 7/16	65	456C134
TKR1200MJ	54 1/2	53 1/16	22 9/16	22 1/8	. . .	10 3/16	67	5668996

NEMA12K with KO's (See Fig. 4)

Cat. No.	Dimensions in Inches A	B	C	D	E	F	Ship. Wt Lb
TB100D	19 5/16	18 5/8	8	8	5 13/16	4 13/16	15
TB400D	32 5/8	32 5/8	17 13/16	17 13/16	9 7/8	8 1/2	37
TE100D	15 5/8	14 11/16	8	8	5 13/16	4 3/4	9
TF225D	21 7/16	20 11/16	10 1/2	10 1/2	7 1/2	6 5/16	18
TJ400D③	22 7/8	22 7/8	16 1/4	15 1/2	7 13/16	6 3/8	25
TJ600D	26 3/4	26 3/4	17 13/16	17 3/16	9 11/16	8 1/4	27

①Screw-mounted cover.
②Side hinged cover.
③Bottom hinged cover.
④For Outline Nos., see NEMA 12 Cat. No.

CONDUIT HUBS (See page 37)

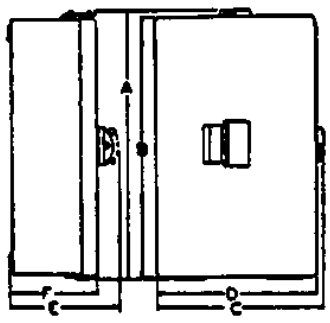


Fig. 1.
Handle thru Cover

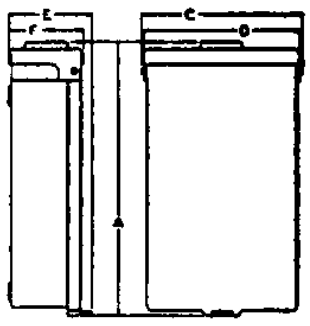


Fig. 2.
Outdoor Enclosure

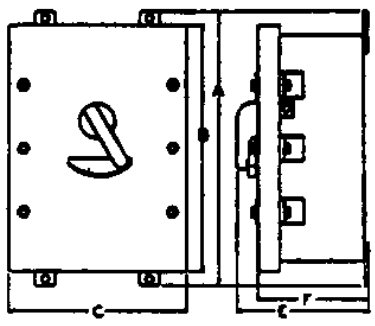


Fig. 3.
Stainless Steel

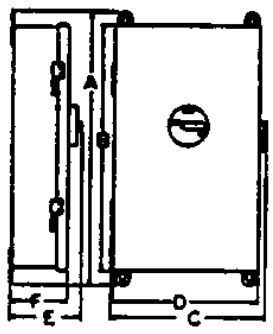


Fig. 4.
Suffix J (without KO's)
Suffix D (with KO's

Circuit Breaker Enclosures

Knockouts

DIMENSIONS—Knockouts

Symbol	A	B	⊕	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z
Size (In.)	9/32	3/8	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	1	1	1	1 1/4	1 1/4	1 1/2	2	2	1 1/2	2	3/4	2	3	3/8
	—	1/2	—	3/4	3/4	3/4	1	1	1	1	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2	2 1/2	2 1/2	2	3	—	2 1/2	3 1/2	1/2
	—	3/4	—	—	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2	2 1/2	3	3	2 1/2	3 1/2	—	3	—	3/4
	—	—	—	—	—	1 1/4	—	1 1/2	3 1/2	1 1/2	—	2	2 1/2	—	2 1/2	—	3 1/2	3 1/2	3	—	—	—	—	1
	—	—	—	—	—	—	—	—	—	2	—	—	—	—	3	—	—	4	—	—	—	—	—	1 1/4
	—	—	—	—	—	—	—	—	—	2 1/2	—	—	—		—	—	—	—	—	—	—	—	—	1 1/2

Circuit Breaker Enclosures	
Cat. No.	KO Fig. No.
TE100D	2
TE100F, S	3
TE100RH	16
TE150F, S	11
TE150RH	20
TF225D	1
TF225F, S	7
TF225R	18
TF225RH	18
TJ400D	12
TJ400F, S	9, 10
TJ400R	19
TJ600F, S	①6
TJ600R	15
TK1200F, S	①
TK1200R	①②
TL212F, S	5
TL212RH	14
TQC100F, S	4
TQC100RH	16
TQD225F, S	11
TQD225NRH	13
TQD225RH	20
TQL70F, S	8
TQL70RH	17
TQL100F, S	4
TQL100RH	16

①Types TJ600F, TK1200F, S and TK-1200 R do not have KO's.

②Use Myers-type conduit hubs listed in Section 7656, page 4.

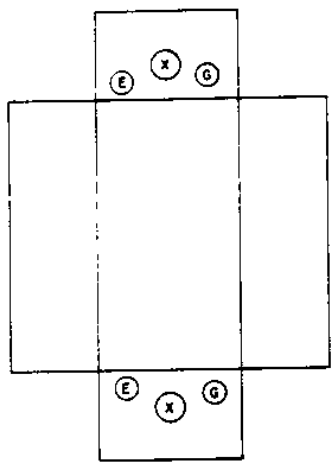


Fig. 1. TF225D

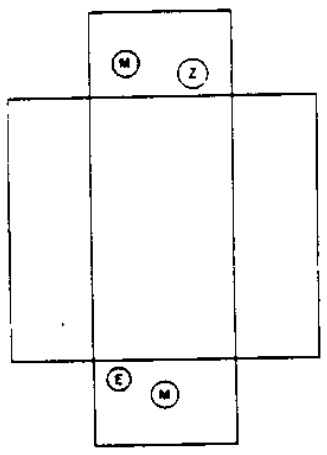


Fig. 2. TE100D

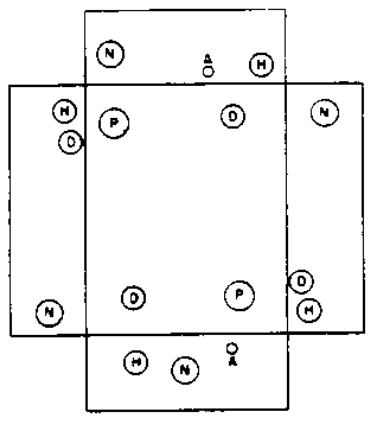


Fig. 3. TE100F, S

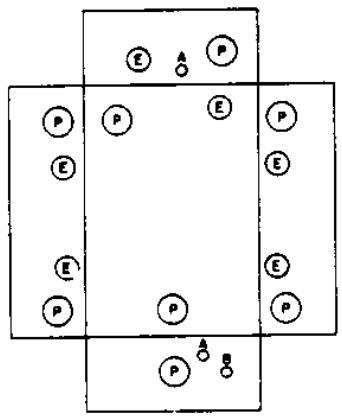


Fig. 4. TQC100F, S, TQL100F, S

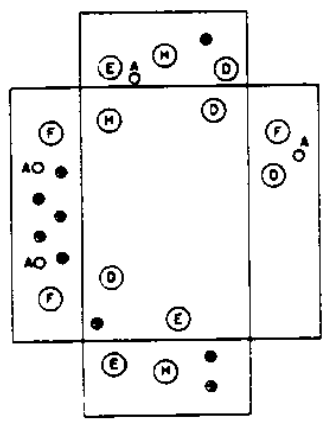


Fig. 5. TL212F, S

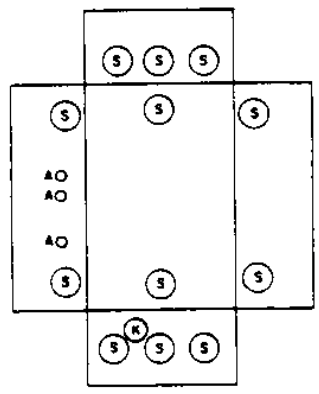


Fig. 6. TJ600S

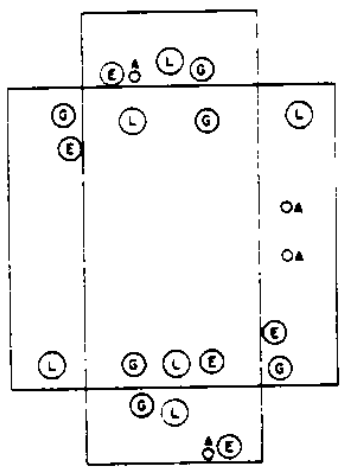


Fig. 7. TP225F, S

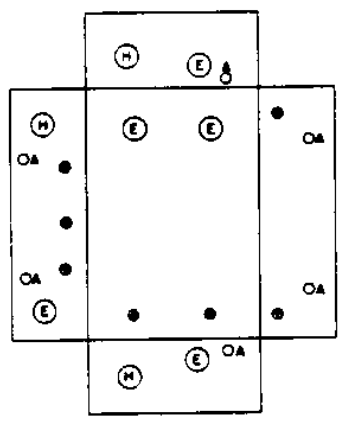


Fig. 8. TQL70F, S

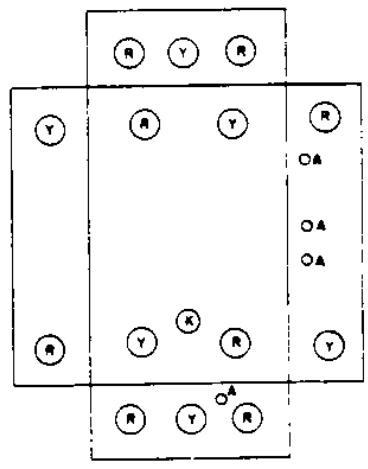


Fig. 9. TJ400F

Circuit Breaker Enclosures

Knockouts

DIMENSIONS—Knockouts

Symbol	A	B	⊕	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z
Size (In.)	⅞₂₂	⅜	½	½	½	½	¾	¾	⅜	¾	1	1	1	1¼	1¼	1½	2	2	1½	2	¾	2	3	⅜
	—	½	—	¾	¾	¾	1	1	1	1	1¼	1¼	1½	1½	1½	2	2½	2½	2	3	—	2½	3½	½
	—	¾	—	—	1	1	1¼	1¼	1¼	1¼	1½	1½	2	2	2	2½	3	3	2½	3½	—	3	—	¾
	—	—	—	—	—	1¼	—	1½	3½	1½	—	2	2½	—	2½	—	3½	3½	3	—	—	—	—	1
	—	—	—	—	—	—	—	—	—	2	—	—	—	—	3	—	—	4	—	—	—	—	—	1¼
	—	—	—	—	—	—	—	—	—	2½	—	—	—		—	—	—	—	—	—	—	—	—	1½

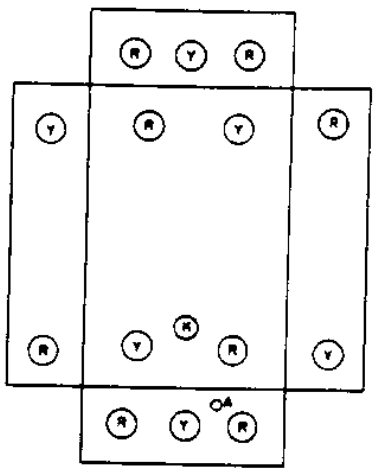


Fig. 10. TJ400S

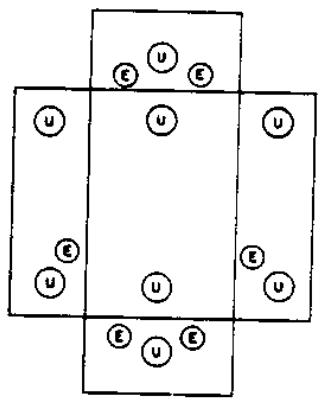


Fig. 11. TE150F, S, TQD225F, S

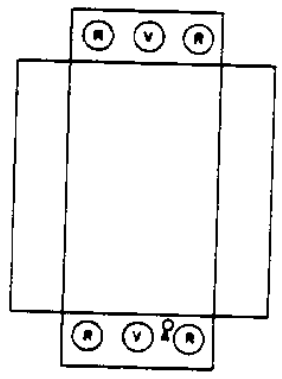


Fig. 12. TJ400D

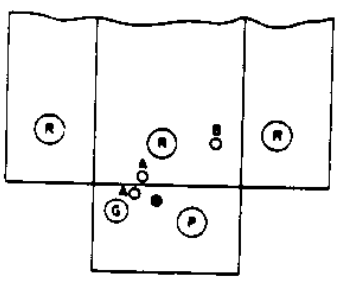


Fig. 13. TQD225NRH

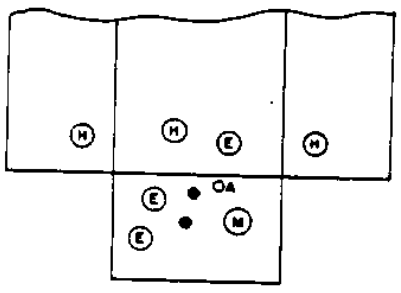


Fig. 14. TL212RH

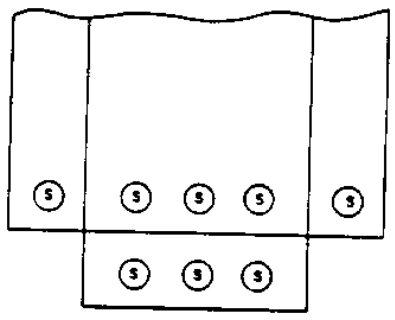


Fig. 15. TJ600R

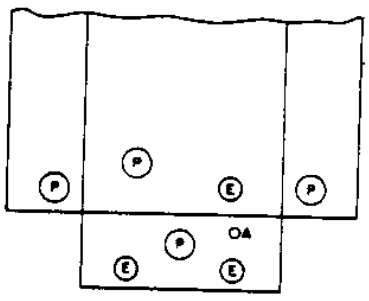


Fig. 16. TE100RH, TQC100RH, TQL100RH

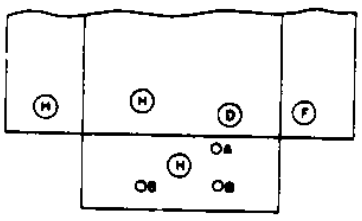


Fig. 17. TQL70RH

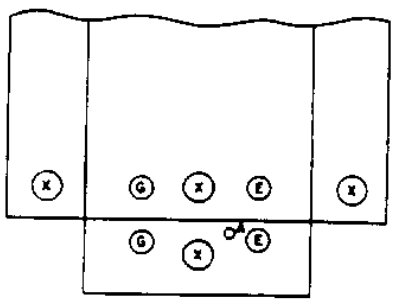


Fig. 18. TP225R, TP225RH

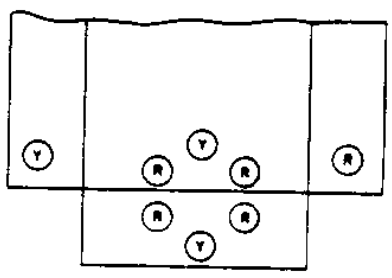


Fig. 19. TJ400R

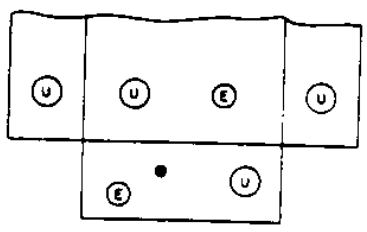
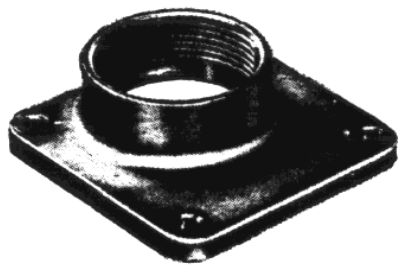


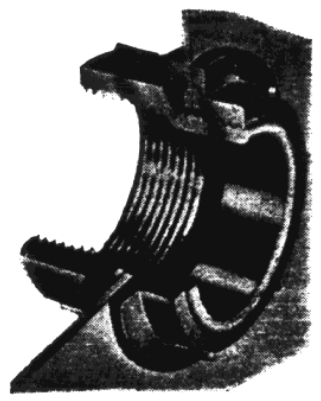
Fig. 20. TE150RH, TQD225RH

Circuit Breaker Enclosures

Accessories



Universal outdoor hub for "RH" outdoor devices



Myers-type conduit hub for "R" outdoor devices

UNIVERSAL OUTDOOR HUBS

For "RH" suffix outdoor devices.

Nominal Conduit Diameter in Inches	Catalog Number	Standard Pkg Qty
¾	TC75	10
1	TC100	
1 ¼	TC125	
1 ½	TC150	
2	TC200	
2 ½	TC250	
Closing Cap	TCCP	

MYERS-TYPE CONDUIT HUBS

For "R" outdoor devices and all NEMA 12 and 4/5

FIELD INSTALLED—unplated or chrome plated.

Nominal Conduit Diameter in Inches	Unplated Hub Catalog Number ①	Chrome Plated Hub Catalog Number ①
½	**343L647G3** 792A365P3	**343L647G17** 792A365P17
¾	**343L647G4** 792A365P4	**343L647G18** 792A365P18
1	**343L647G5** 792A365P5	**343L647G19** 792A365P19
1 ¼	**343L647G6** 792A365P6	**343L647G20** 792A365P20
1 ½	**343L647G7** 792A365P7	**343L647G21** 792A365P21
2	**343L647G8** 792A365P8	**343L647G22** 792A365P22
2 ½	**343L647G9** 792A365P9	**343L647G23** 792A365P23
3	**343L647G10** 792A365P10	**343L647G24** 792A365P24
3 ½	**343L647G11** 792A365P11	**343L647G25** 792A365P25
4	**343L647G12** 792A365P12	**343L647G26** 792A365P26

①Order by **343L647G**—Cat. No.; 792A365P—is for reference only.

INTRODUCING
Micro VersaTrip 9

NINE TIME-CURRENT CHARACTERISTICS

System Coordination Flexibility

PROGRAMMABLE MICRO ELECTRONIC PROCESSOR

Forms the basis of the Micro VersaTrip protection programmer. This miniaturization of circuitry provides the increased flexibility required to incorporate nine adjustable time-current functions, three mechanical fault indicators (local and remote), a long-time pickup LED indicator and zone selective interlocking. All adjustable programmer functions are automatic and self contained requiring no external relaying, power supply or accessories. Each printed circuit card is given a protective conformal epoxy coating to prevent moisture absorption, fungus growth and signal leakage.

INTEGRAL DIAGNOSTIC CIRCUITRY

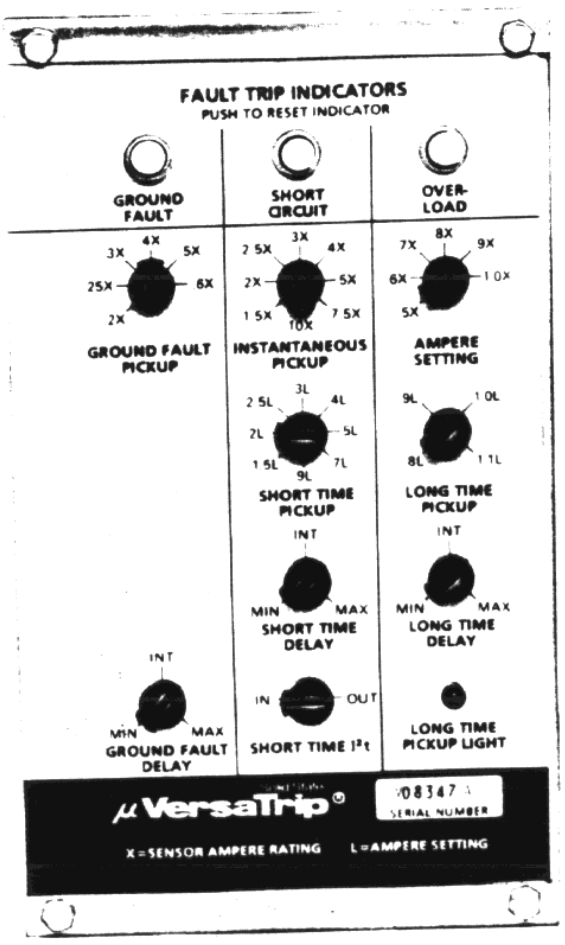
Designed to reduce system down time by analyzing any overcurrent fault and visually identifying its cause as an overload, short circuit or ground fault. Both local and remote indication is available. A long-time pick-up timing indicator is also provided as an aid in testing and identifying an overcurrent condition in process.

GOLD PLATED ROTARY SWITCH ADJUSTMENTS

Provide highly reliable fixed point field programmable controls for greater repetitive accuracy and more precise trip unit settings. Gold plated surfaces on all electrical connectors and adjustments assure long-lasting and positive electrical contact.

NINE TIME-CURRENT CHARACTERISTICS

System Coordination Flexibility



1. **Adjustable ampere setting** — varies the level of current the breaker will carry indefinitely without tripping. Adjustable in six steps from 50-100% of sensor ampere rating. Changing this setting has the same effect as changing the trip unit in an interchangeable trip circuit breaker.

2. **Adjustable long-time pickup** — provides fine tuning capability of the breaker ampere setting. This pickup level is adjustable in four steps from 80-110% of the ampere setting.

3. **Adjustable long-time delay** — varies the time it will take the breaker to trip under sustained overload conditions. It provides the function of withstanding momentary overloads such as motor starting, welding, or other over-current conditions without interrupting the service.

4. **Adjustable short-time pickup** — controls the level of high current the breaker can carry for short periods of time.

5. **Adjustable short-time delay** — used in conjunction with the short-time pick-up point adjustment to provide a further refinement of coordination between circuit breakers.

6. **Short-time I^2t switch** — provides the ability of introducing an I^2t ramp function in the short-time characteristic for maximum coordination with downstream devices.

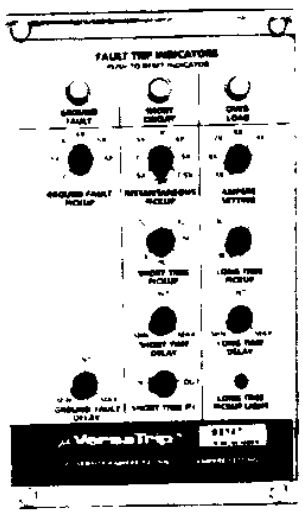
7. **Adjustable instantaneous pickup** — sets the level at which immediate interruption of severe overloads occur, thereby minimizing damage to system equipment. A fixed instantaneous override is provided on circuit breakers ordered with the "D" suffix.

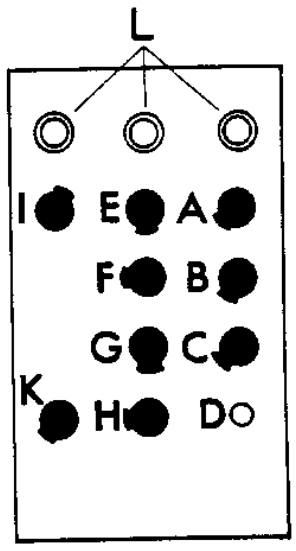
8. **Adjustable ground fault pickup** — controls the level of ground fault current at which circuit interruption will occur. To comply with the 1978 National Electrical Code (NEC 230-95) no trip point exceeds 1200 amperes.

9. **Adjustable ground fault delay** — provides tripping selectivity between main and feeder or other "down-stream" breakers. Because of the highly intermittent and erratic nature of arcing ground faults, a memory circuit has been incorporated in the sensing circuits as standard. The memory circuit integrates arcing fault current with time. This represents an added dimension in ground fault protection.

Micro VersaTrip 9

NINE TIME-CURRENT CHARACTERISTICS





TRIP FUNCTION CHARACTERISTICS

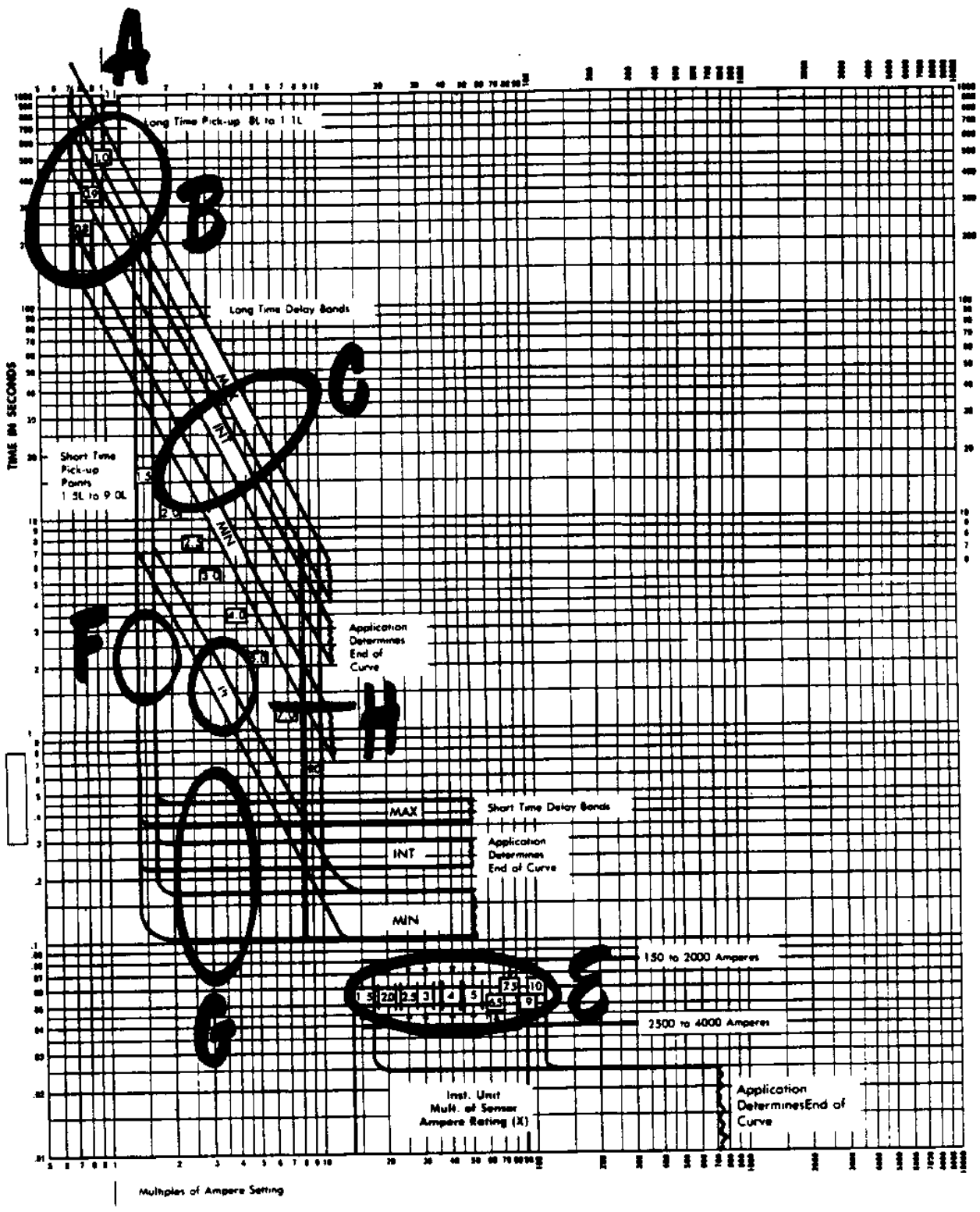
Programmer Function	STD	OPTIONS Catalog Number Suffix Letters												
		S—or—D		L	G3—or-G4		or-GR	A2—or—A3-or A5—or—A6				Z1—or—Z2—or—Z3		
A - Adj. Ampere Setting	√	√	√											
B - Adj. Long-time Pickup				√										
C - Adj. Long-time Delay	√	√	√											
D - Long-time Timing Light	√	√	√											
F - Adj. Short-time Pickup		√	√											
G - Adj. Short-time Delay		√	√											
H - Short-time I^2t Switch				√										
E - Adj. Instantaneous Pickup	√	√												
M - Fixed Instantaneous Override			√											
I - Adj. Ground Fault Pickup:					√	√	√							
— 1φ, 2w or 3φ, 3w					√									
— 1φ, 3w or 3φ, 4w						√								
— Ground return sensing construction							√							
K - Adj. Ground Fault Delay					√	√	√							
L - Fault Trip Indicators:								√	√	√	√			
Overload and Short Circuit								√		√				
— Local only								√						
— Local and remote									√		√			
Overload, Short Circuit and Ground Fault														
— Local only									√		√			
— Local and remote														
13. Zone Selective Interlocking:												√	√	√
— For short-time function only												√		
— For ground fault function only													√	
— For short-time and ground fault														√

			A	B		C	F		G	E	M	H	I		K
				Long-time			Short-Time			Adjustable Instantaneous Pickup (Multiple of sensor ampere rating)	Fixed Instantaneous Override (Multiple of sensor ampere rating)	Short-time I^2t ① (Seconds)	Ground Fault		
Frame Size	Maximum Rating (Amps)	Sensor Rating (Amps)	Ampere Setting (Multiple of sensor ampere rating)	Pickup (Multiple of ampere setting)		Delay ① (Seconds)	Pickup (Multiple of ampere setting)		Delay ② (Seconds)				Pickup (Multiple of sensor ampere rating)		Delay ③ (Seconds)
J-600	300	150, 200, 300	.5, .6, .7, .8, .9, 1.0x	.8, .9, 1.0, 1.1L		2.3, 7.0, 13.0	1.5, 2, 2.5, 3, 4, 5, 7, 9L		0.10, 0.22, 0.36	1.5, 2, 2.5, 3, 4, 5, 7.5, 10 x	15x	0.4	.2, .25, .3, .4, .5, .6x		0.10, 0.22, 0.37
	600	400, 500, 600													
K-1200	800	400, 600, 800													
	1200	1000, 1200													
R-2000	2000	1000, 1600, 2000													
R-2500	2500	2500								1.5, 2, 2.5, 3, 4, 5, 6.5, 9x	13x		.18, .20, .25, .3, .35, .4x		
R-3000	3000	3000													
R-4000	4000	4000									9x		.18, .2, .22, .25, .28, .3x		

① Time delay shown at 600% of ampere setting at lower limit of each band.
② Time delay shown at lower limit of each band.

Micro VersaTrip 9

NINE TIME-CURRENT CHARACTERISTICS



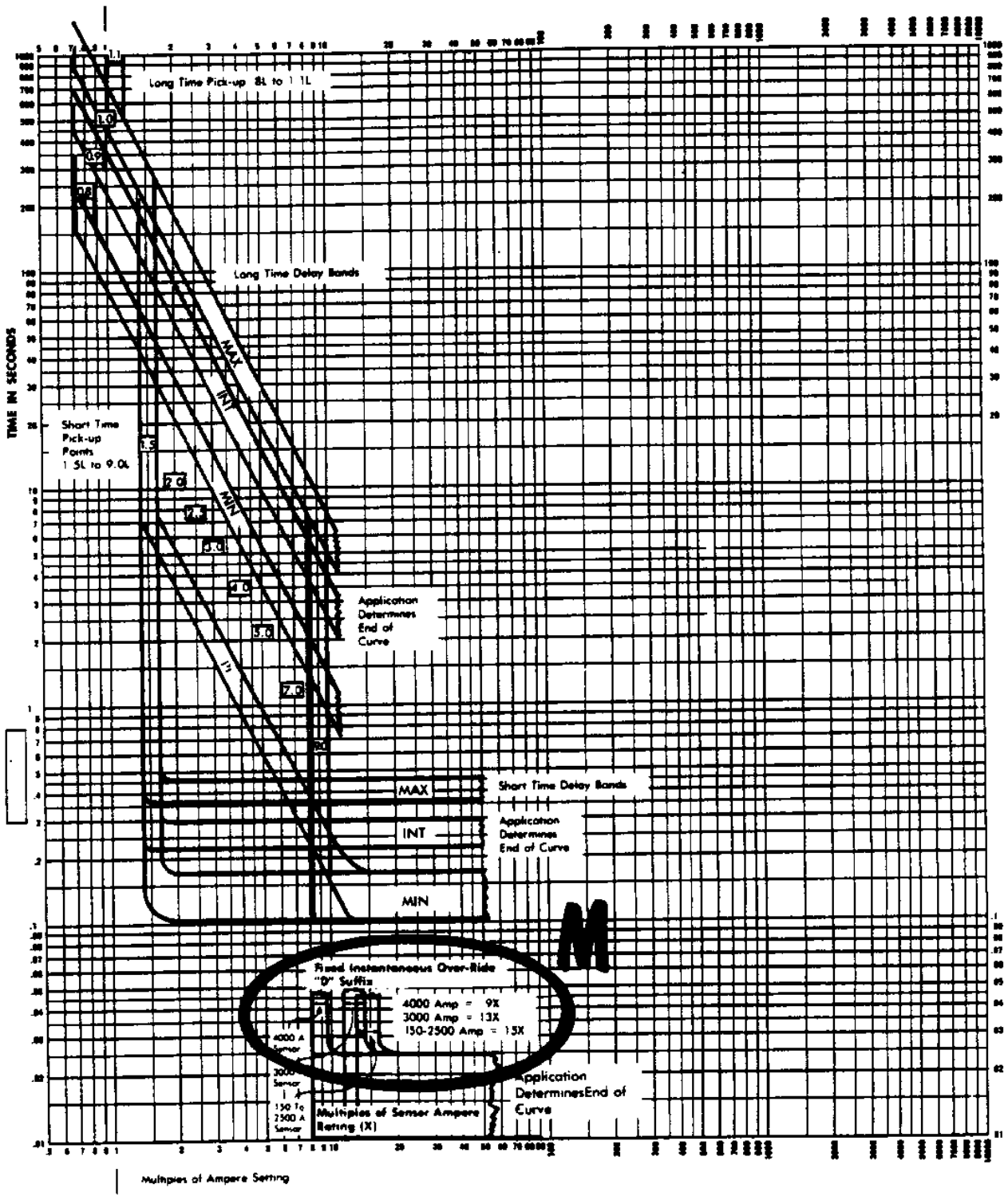
GENERAL ELECTRIC	TIME-CURRENT CURVES	GCE-VT-53578-1
Curves Show Base Device with all options	**J, K and R Frames** with μVersatrip 9	
	150 to 4000 Amperes	
	Curves Apply @ 50 60 Hz from 20 C to 55 C)	

GOLD PLATED ROTARY SWITCH ADJUSTMENTS

Provide highly reliable fixed point programmable controls for greater repetitive accuracy and more precise trip unit settings. Gold plated surfaces on all electrical connectors and adjustments assure long-lasting and positive electrical contact.

Micro VersaTrip 9

NINE TIME-CURRENT CHARACTERISTICS



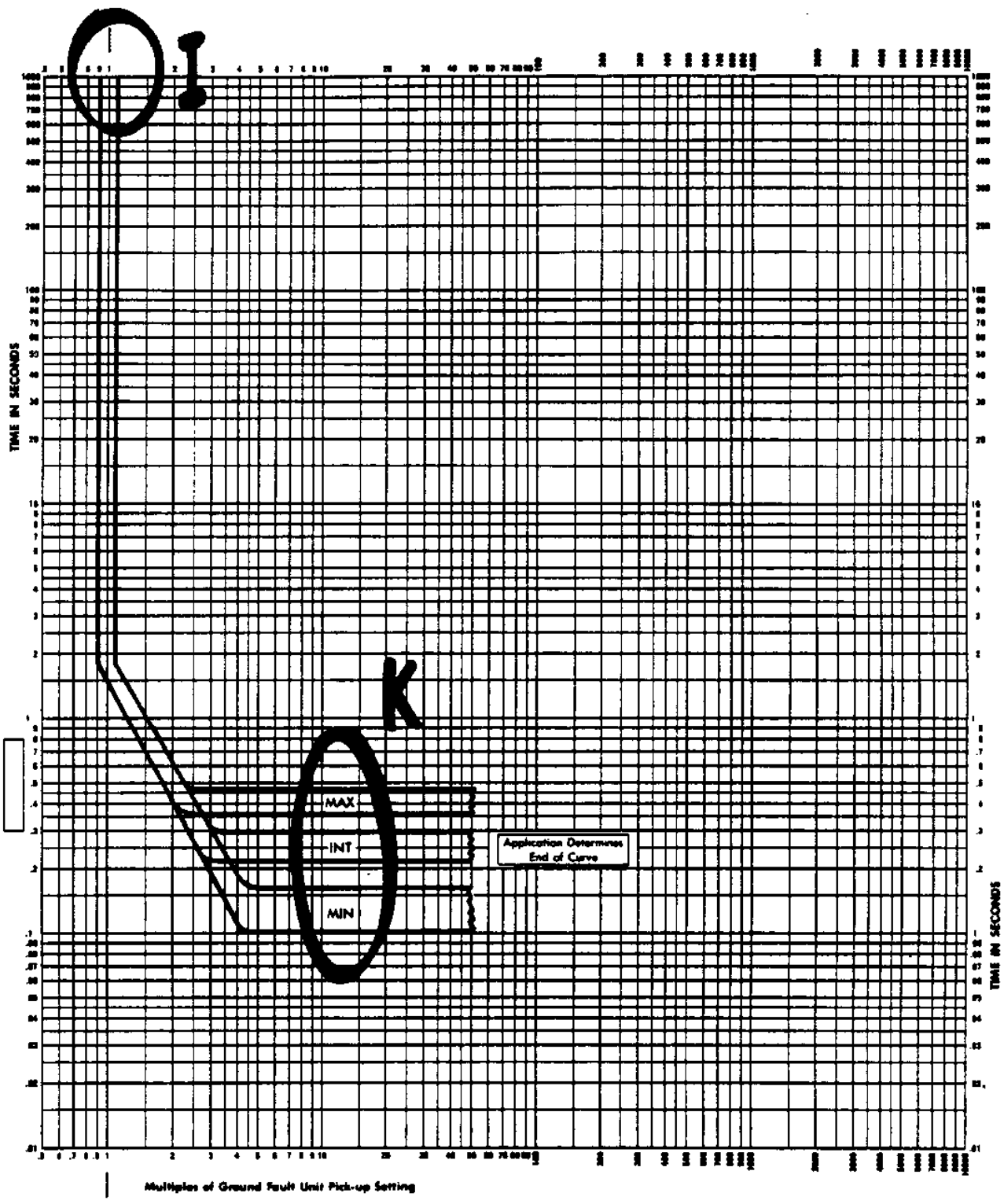
GENERAL ELECTRIC	TIME-CURRENT CURVES	GCE-VT-53578-2
Curves Show Base Device with all options	**J, K and R Frames** with μVersatrip 9	
	150 to 4000 Amperes	
	(Curves Apply @ 50 60 Hz from 20 C to - 55 C)	

GOLD PLATED ROTARY SWITCH ADJUSTMENTS

Provide highly reliable fixed point programmable controls for greater repetitive accuracy and more precise trip unit settings. Gold plated surfaces on all electrical connectors and adjustments assure long-lasting and positive electrical contact.

Micro VersaTrip 9

NINE TIME-CURRENT CHARACTERISTICS



GENERAL ELECTRIC	TIME-CURRENT CURVES	GCE-VT-13578
	μVersatrip® **all Frames** **Ground Fault Unit** **150 to 4000 Amperes** (Curves apply @ 50/60 Hz from −20°C to +55°C)	GROUND FAULT UNIT Pick-up Settings (200-2000 Amps) — .2 .25 .3 .4 .5 .6 Times the Sensor Tap Setting or Sensor Rating Settings (2500 - 3000 Amps) — .18 .20 .25 .3 .35 .4 (X) Sensor Tap Setting or Sensor Rating Settings (4000 Amps) — .18, .2, .22, .25, .28, .30 (X) Sensor Tap Setting or Sensor Rating

GOLD PLATED ROTARY SWITCH ADJUSTMENTS

Provide highly reliable fixed point programmable controls for greater repetitive accuracy and more precise trip unit settings. Gold plated surfaces on all electrical connectors and adjustments assure long-lasting and positive electrical contact.

Micro VersaTrip 9

NINE TIME-CURRENT CHARACTERISTICS

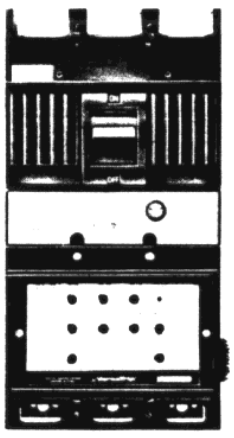
MOLDED CASE

J 600 and K 1200 Ampere Frames

FEATURES

- **Standard UL listed or UL listed, 100% equipment rated**
- **Hi-Break construction**
- **Bus connected**
- **Line and load lugs for UL listed construction**
- **Integral ground fault protection**
- **Up to nine adjustable programmer functions**
- **Fault trip indication — local or remote**
- **Zone selective interlocking**

J 600 Ampere



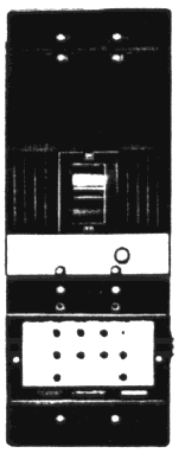
- Interrupting Ratings (RMS Symmetrical Amperes):

Volt Ac	Hi-Break
240	65,000
480	35,000
600	25,000

Standard UL Listed
Type THJS9

100% UL Listed
Type THJSS9

K 1200 Amperes



- Interrupting Ratings (RMS Symmetrical Amperes):

Volts Ac	Hi-Break
240	65,000
480	50,000
600	25,000

Standard UL Listed
Types THKS9

100% UL Listed
Types THKSS9

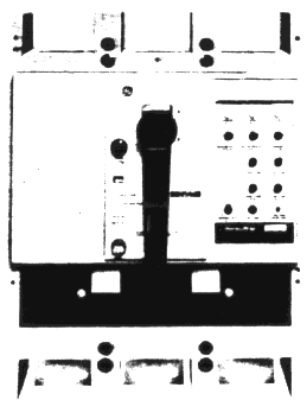
Micro VersaTrip 9

NINE TIME-CURRENT CHARACTERISTICS

INTRODUCING "R" FRAME

Insulated Case Power Break

R 2000 — R 2500 — R 3000 — R 4000 Ampere Frames



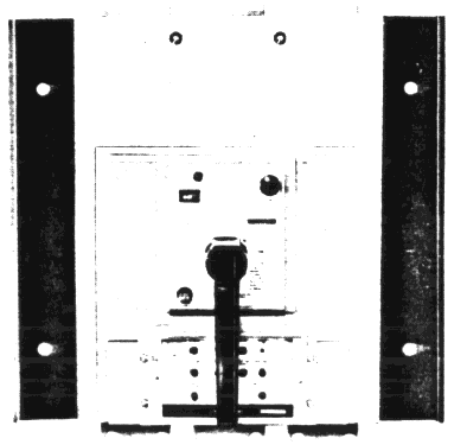
R-2000

R-2500 and R-3000

FEATURES

- UL listed 100% equipment rated
- Bus connected
- Lugs and bus adapters available
- Line top or line bottom construction
- Rotary operated handle mechanism
- All breakers supplied with two-step stored energy mechanism
- Local or remote five-cycle closing for manual or electrical breakers
- Local or remote charge indication — manual or electrical breakers
- Front-connected or back-connected construction
- Manual breaker construction 30% shallower than electrically operated breaker
- Integral ground fault protection
- Up to nine adjustable programmer functions
- Fault trip indication — local or remote
- Zone selective interlocking — ground fault or short time
- Interrupting ratings (RMS symmetrical amperes):

Volts Ac	R-2000	R-2500	R-3000	R-4000
240	125,000	125,000	125,000	125,000
480	100,000	100,000	100,000	100,000
600	65,000	65,000	65,000	65,000



R-4000

Introducing
Micro VersaTrip 4

FOUR TIME-CURRENT CHARACTERISTICS

PROGRAMMABLE MICRO ELECTRONIC PROCESSOR

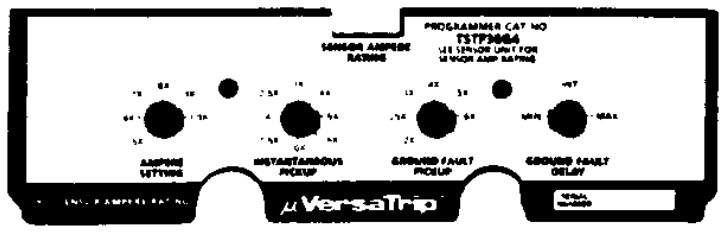
Forms the basis of the Micro VersaTrip protection programmer. This miniaturization of circuitry provides the increased flexibility required to incorporate four adjustable time-current functions. All adjustable programmer functions are automatic and self contained requiring no external relaying, power supply or accessories. Each printed circuit card is given a protective conformal epoxy coating to prevent moisture absorption, fungus growth and signal leakage.

GOLD PLATED ROTARY SWITCH ADJUSTMENTS

Provide highly reliable fixed point field programmable controls for greater repetitive accuracy and more precise trip unit settings. Gold plated surfaces on all electrical connectors and adjustments assure long-lasting and positive electrical contact.

Micro VersaTrip 4

FOUR TIME-CURRENT CHARACTERISTICS



1. **Adjustable ampere setting** — varies the level of current the breaker will carry indefinitely without tripping. Adjustable in six steps from 50–100% of sensor ampere rating. Changing this setting has the same effect as changing the trip unit in an interchangeable trip circuit breaker.

2. **Either . . .**

   Adjustable instantaneous pickup — sets the level at which immediate interruption of severe overloads occur, thereby minimizing damage to system equipment. A fixed instantaneous is provided on circuit breakers ordered without the adjustable function.

   or . . .

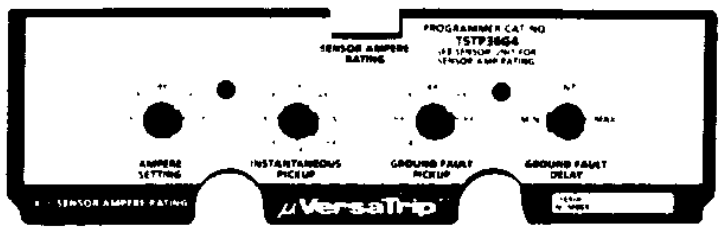
   Adjustable short-time pickup — controls the level of high current the breaker can carry for short periods of time. A special I^2t short-time adjustment is provided with the "N"suffix.

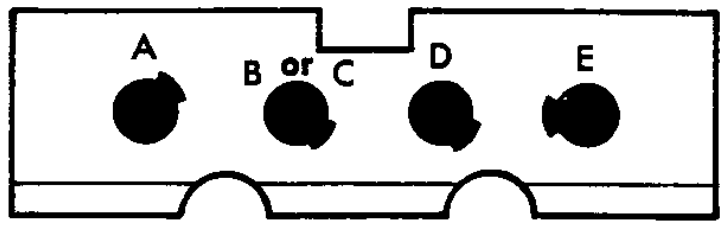
3. **Adjustable ground fault pickup** — controls the level of ground fault current at which circuit interruption will occur. To comply with the 1978 National Electrical Code (NEC 230-95) no trip point exceeds 1200 amperes.

4. **Adjustable ground fault delay** — provides tripping selectivity between main and feeder or other "down-stream" breakers. Because of the highly intermittent and erratic nature of arcing ground faults, a memory circuit has been incorporated in the sensing circuits as standard. The memory circuit integrates arcing fault current with time. This represents an added dimension in ground fault protection.

Micro VersaTrip 4

FOUR TIME-CURRENT CHARACTERISTICS





TRIP FUNCTION CHARACTERISTICS

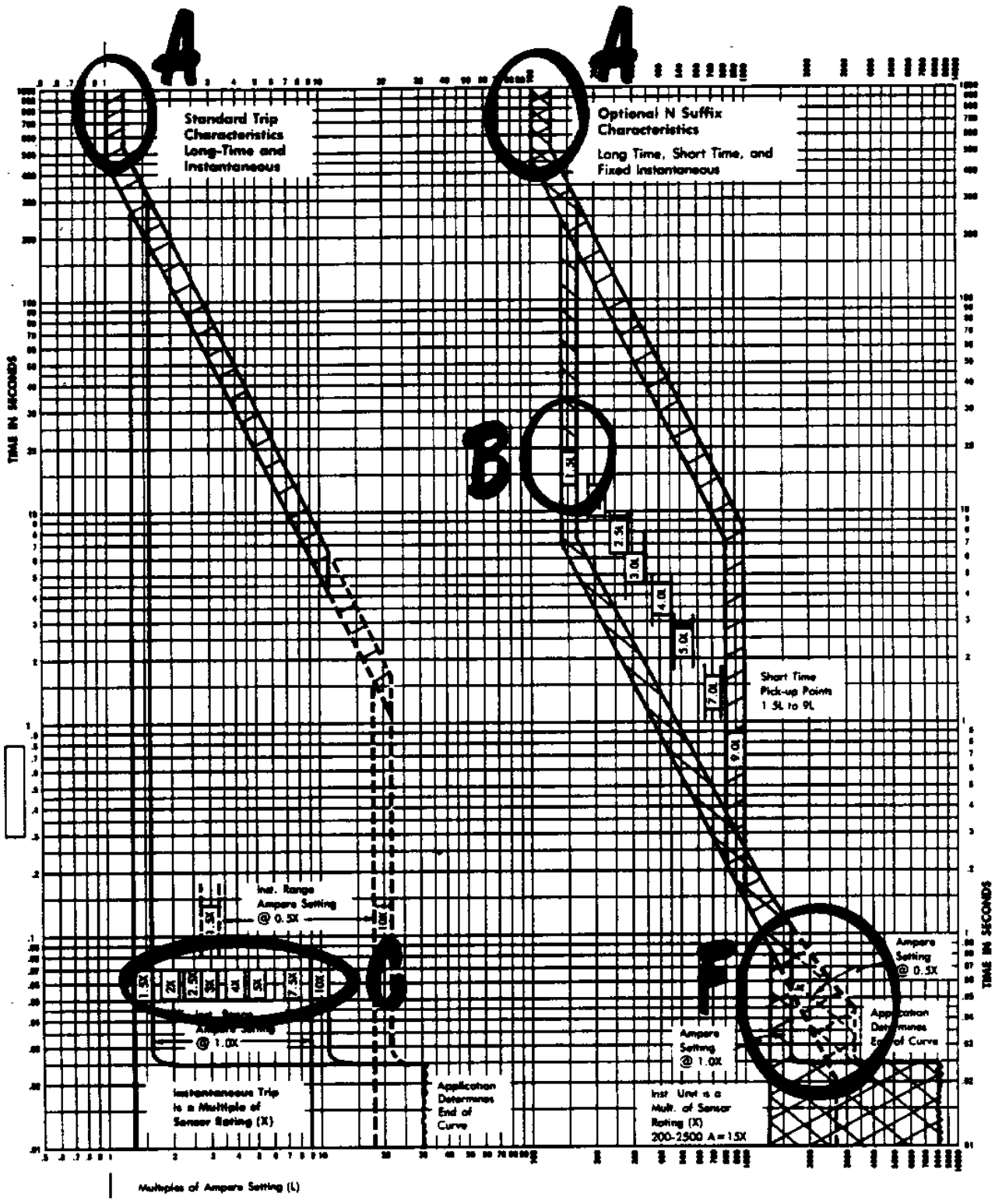
	STD	OPTIONS			
Programmer Function		N	G3 — or — G4 - or — GR		
A - Adj. Ampere Setting	√	√			
B - Adj. Short-time Pickup		√			
C - Adj. Instantaneous Pickup	√				
F - Fixed Instantaneous Override		√			
D - Adj. Ground Fault Pickup:					
— 1φ, 2w or 3φ, 3w — 1φ, 3w or 3φ, 4w — Ground return sensing construction			√	√	√
E - Adj. Ground Fault Delay			√	√	√

			A	B	C	F	D	E
							Ground Fault	
Frame Size	Maximum Rating (Amps)	Sensor Rating (Amps)	Ampere Setting (Multiple of sensor ampere rating)	Short Time Pickup (Multiple of ampere setting)	Adjustable Instantaneous Pickup (Multiple of sensor ampere rating)	Fixed Instantaneous Override (Multiple of sensor ampere rating)	Pickup (Multiple of sensor ampere rating)	Delay ① (Seconds)
J-600	300	150, 200, 300	.5, .6, .7, .8, .9, 1.0x	1.5, 2, 2.5, 3, 4, 5, 7, 9L	1.5, 2, 2.5, 3, 4, 5, 7.5, 10x	15x	.2, .25, .3, .4, .5, .6x	0.10, 0.22, 0.37
	600	400, 500, 600						
K-1200	800	400, 600, 800						
	1200	1000, 1200						
R-2000	2000	1000, 1600, 2000						
R-2500	2500	2500			1.5, 2, 2.5, 3, 4, 5, 6.5, 9x	13x	.18, .20, .25, .3, .35, .4x	
R-3000	3000	3000						
R-4000	4000	4000				9x	.18, .2, .22, .25, .28, .3x	

① Time delay shown at lower limit of each band.

Micro VersaTrip 4

FOUR TIME-CURRENT CHARACTERISTICS



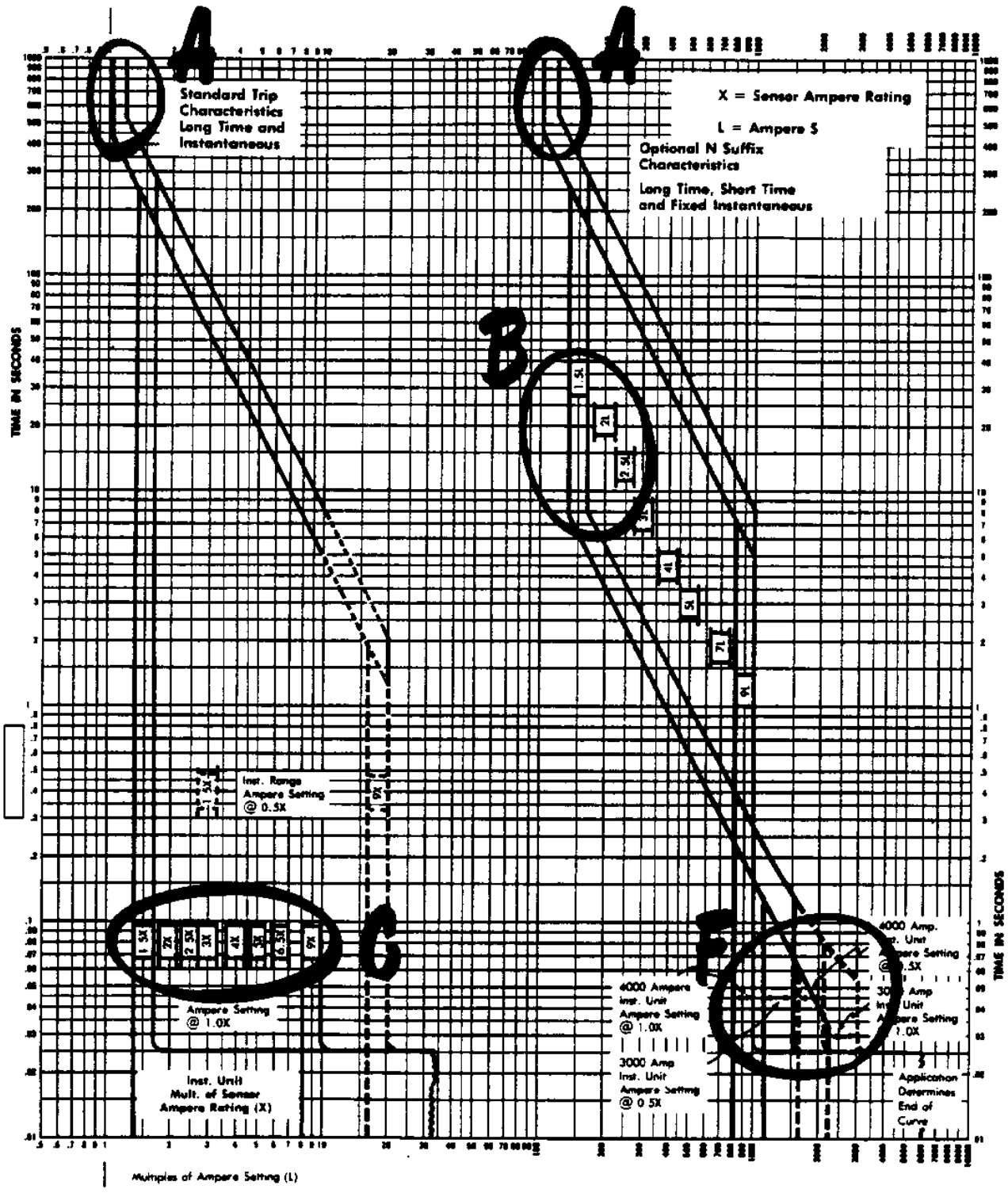
GENERAL ELECTRIC	TIME-CURRENT CURVES **J, K and R FRAMES** with **μVersatrip 4** **150 - 2500 Amperes** (Curves apply @ 50/60 Hz from −20°C to +55°C)	**GCE-VT-23578**

GOLD PLATED ROTARY SWITCH ADJUSTMENTS

Provide highly reliable fixed point programmable controls for greater repetitive accuracy and more precise trip unit settings. Gold plated surfaces on all electrical connectors and adjustments assure long-lasting and positive electrical contact.

Micro VersaTrip 4

FOUR TIME-CURRENT CHARACTERISTICS



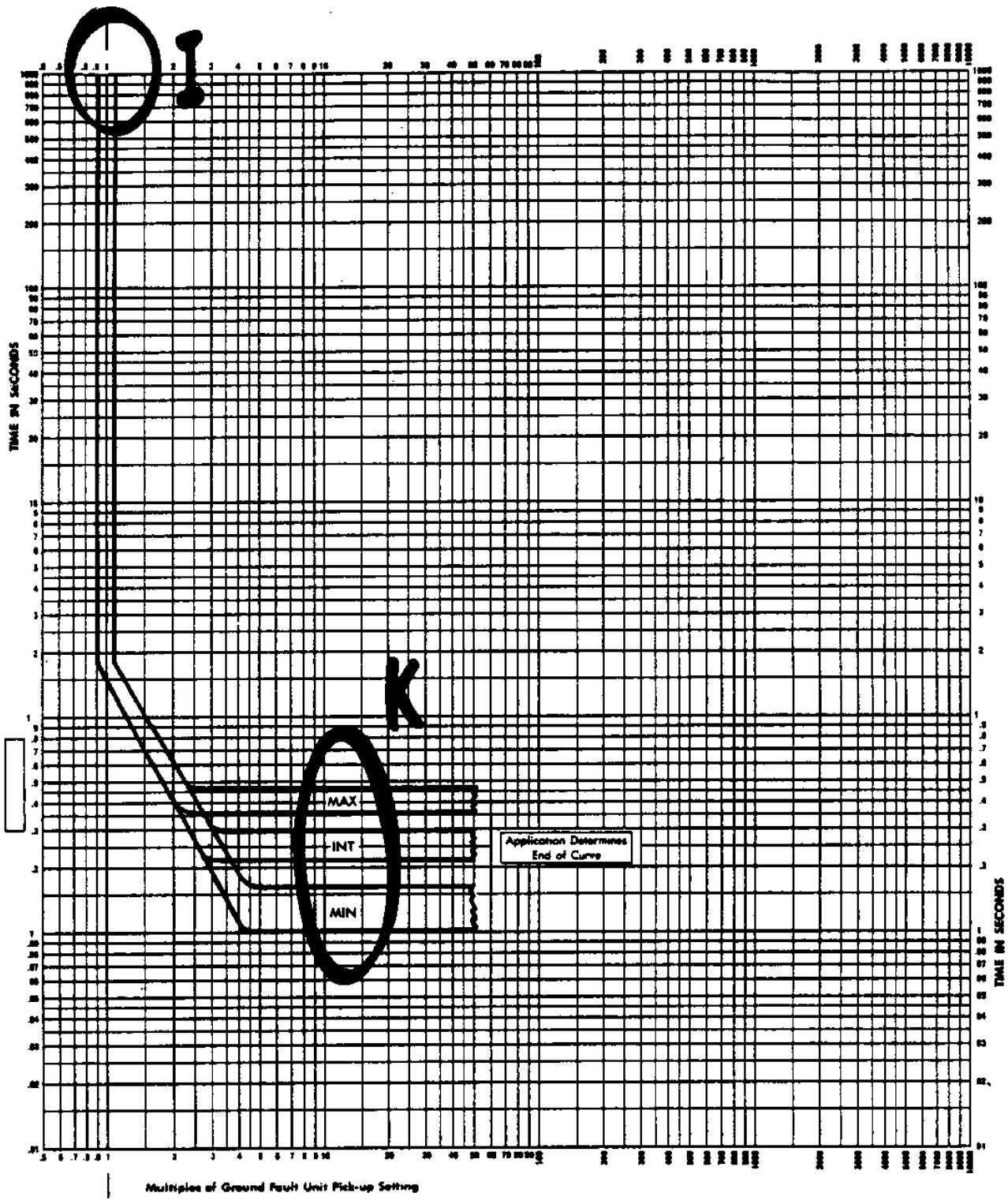
GENERAL ELECTRIC	TIME-CURRENT CURVES	GCE-VT-33578
	POWER BREAK R FRAME **with μVersatrip 4** **3000 and 4000 Amperes** (curves apply @ 50 60 Hz from −20°C to +55 C)	Programmer Set Points Pick-up Ampere Setting — 0.5, 0.6, 0.7, 0.8, 0.9, 1.0 times the Sensor Ampere Rating (X) Short Time — As shown times the Ampere Setting (L) Instantaneous — As shown times the Sensor Ampere Rating (X)

GOLD PLATED ROTARY SWITCH ADJUSTMENTS

Provide highly reliable fixed point programmable controls for greater repetitive accuracy and more precise trip unit settings. Gold plated surfaces on all electrical connectors and adjustments assure long-lasting and positive electrical contact.

Micro VersaTrip 4

FOUR TIME-CURRENT CHARACTERISTICS



GENERAL ELECTRIC	TIME-CURRENT CURVES	GCE-VT-13578
	μVersatrip® all Frames Ground Fault Unit 150 to 4000 Amperes (Curves apply @ 50/60 Hz from −20°C to +55°C)	GROUND FAULT UNIT Pick-up Settings (200-2000 Amps) — 2 .25 .3 .4 .5 .6 Times the Sensor Tap Setting or Sensor Rating Settings (2500 - 3000 Amps) — .18 .20 .25 .3 .35 .4 (X) Sensor Tap Setting or Sensor Rating Settings (4000 Amps) — .18 .2 .22 .25 .28 .30 (X) Sensor Tap Setting or Sensor Rating

GOLD PLATED ROTARY SWITCH ADJUSTMENTS

Provide highly reliable fixed point programmable controls for greater repetitive accuracy and more precise trip unit settings. Gold plated surfaces on all electrical connectors and adjustments assure long-lasting and positive electrical contact.

Micro VersaTrip 4

FOUR TIME-CURRENT CHARACTERISTICS

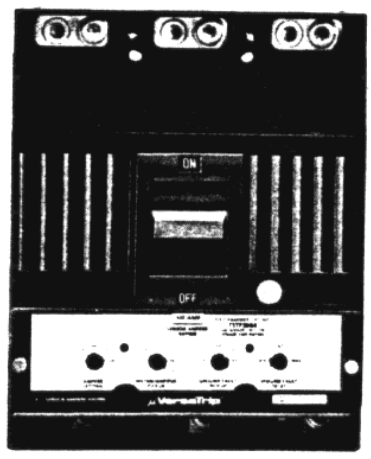
MOLDED CASE

J 600 — K 800 — K 1200 Ampere Frames

FEATURES

- **UL listed**
- **Standard- or Hi-Break construction**
- **Solid state trip unit directly replaces thermal-magnetic trip unit with cover changeout**
- **Suitable for bus connection or line and load lugs**
- **Integral ground fault protection**
- **Up to four adjustable programmer functions**

J 600 Amperes

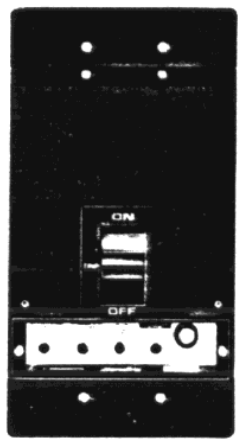


- Interrupting ratings (RMS symmetrical amperes):

Volts Ac	Standard-Break	Hi-Break
240	42,000	65,000
480	30,000	35,000
600	22,000	25,000

Types TJS4 — THJS4

K 800 and K 1200 Amperes



- Interrupting ratings (RMS symmetrical amperes):

Volts Ac	Standard-Break	Hi-Break
240	42,000	65,000
480	30,000	50,000
600	22,000	25,000

Types TKS4 — THKS4

Micro VersaTrip 4

FOUR TIME-CURRENT CHARACTERISTICS

INTRODUCING "R" FRAME

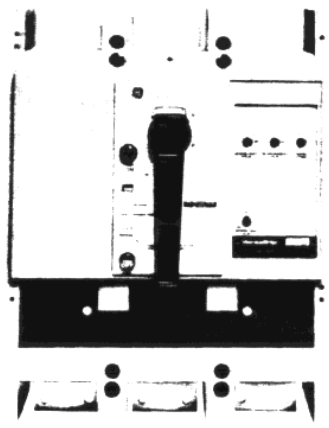
Insulated Case Power Break

R 2000 — R 2500 — R 3000 Ampere Frames

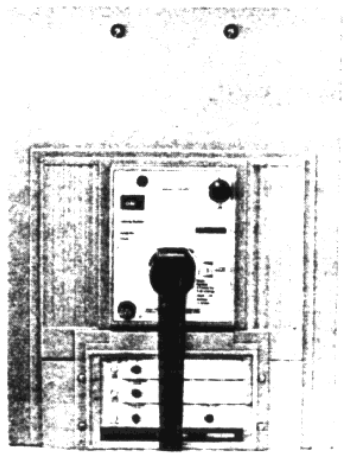
FEATURES

- UL listed or UL listed 100% equipment rated
- Bus connected
- Lugs and bus adapters available
- Line top or line bottom construction
- Rotary operated handle mechanism
- All breakers supplied with two-step stored energy mechanism
- Local or remote five-cycle closing for manual or electrical breakers
- Local or remote charge indication — manual or electrical breakers
- Front-connected or back-connected construction
- Manual breaker construction 30% shallower than electrically operated breaker
- Integral ground fault protection
- Up to four adjustable programmer functions
- Interrupting ratings (RMS symmetrical amperes):

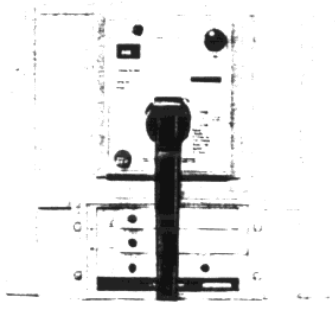
Volts Ac	R-2000	R-2500	R-3000
240	125,000	125,000	125,000
480	100,000	100,000	100,000
600	65,000	65,000	65,000



Type R-2000



Type R-2500



Type R-3000

GE INDUSTRIAL CIRCUIT BREAKERS

APPLICATION FLEXIBILITY

In switchboards, in motor control centers, in lighting and distribution panelboards, and in other applications to 600 volts AC or 250 volts DC, more and more often, GE Industrial Circuit Breakers are being used for circuit protection. The industrial breaker in an individual enclosure is also being used in an increasing number of applications replacing fusible switches as a result of:

MINIMUM DOWNTIME

Downtime is reduced — fuse replacement is eliminated with the circuit breaker. It is designed for continuous operation and fault interruption without damage to itself. In case of overload or short circuit the breaker trips, opening the circuit and protecting the conductors. When normal current is restored, the breaker can be closed ("ON") again.

TRIP-FREE MECHANISM

The breaker's trip-free mechanism opens the breaker contacts under overload or short-circuit conditions, even though the breaker handle is held in ON position.

ELIMINATE SINGLE-PHASING

The circuit breaker eliminates single-phasing. When an overload or short-circuit occurs on any one conductor, a common trip bar disconnects all three conductors of a 3-phase circuit simultaneously.

EASY SYSTEM UPGRADING

With a GE breaker, the circuit can be up-rated, even after the breaker has been installed. Interchangeable trips provide a wide range of ratings within the same frame.

ACCESSORY FUNCTIONS

Application flexibility of the molded case breaker is complemented by a breaker accessory line. Remote closing or opening, voltage-drop protection, indication of "tripped" condition at a remote location, electrical or mechanical interlocking, automatic reclosing, and primary or sequential operation are some of the functions practical with accessories.

SPACE SAVINGS

Space savings can be an important factor in selecting GE Industrial Circuit Breakers as equipment components. Breakers in higher ratings, in particular, offer major space economies over fused switches.

REPETITIVE OPERATION

They are repetitive in operation, as opposed to fuses which must be replaced once they have operated; circuit breakers have the outstanding advantage that they can be periodically tested, verifying proper operation and completeness of protection.

INTEGRAL GROUND FAULT PROTECTION

GE offers integral fault protection for equipment and personnel.

COMPLETE PRODUCT LINE

GE offers the most complete line of Industrial Circuit Breakers in the market. A breaker for every application.

GENERAL INFORMATION

GE INDUSTRIAL CIRCUIT BREAKER PRODUCT LINE

AMPERE CAPACITY ..... 5 TO 4000 AMPERES

VOLTAGE ..... 120 - 120/240 — 120/208 - 240 - 480
600 VOLTS A.C.
125 - 250 VOLTS D.C.

POLES ..... 1 - 2 - 3 - 4 - POLE

INTERRUPTING CAPACITY ..... 10KA TO 125KA

BREAKER CONSTRUCTION TYPES

IC RATINGS	TRIP UNITS	TRIP MODES
• STANDARD BREAK • HI-BREAK	• FIXED • INTERCHANGEABLE	• THERMAL-MAGNETIC • MAGNETIC ONLY • THERMAL-MAGNETIC FUSE-ASSISTED • NON-AUTOMATIC (MOLDED CASE SWITCH) • THERMAL-MAGNETIC + 5MIL AMPERE PERSONAL PROTECTION • SOLID STATE WITH INTEGRAL GROUND FAULT PROTECTION — VERSATRIP — SELECTRIP — MICRO-VERSATRIP 9 — MICRO-VERSATRIP 4

SPECIAL PURPOSE CIRCUIT BREAKERS

- MOTOR CIRCUIT PROTECTION
- MINE DUTY
- HEAT PUMPS — ELECTRIC FURNACES — BUSINESS MACHINES — CONTROL PANELS

GENERAL INFORMATION

PRODUCT DESIGN

Over the years, many engineering innovations and customer benefits have been added to industrial circuit breakers, giving them a greater ability to meet the circuit protective needs of low voltage distribution systems. The increasing use of circuit breakers in Industrial, Commercial, and Residential power systems attests to the reliable overcurrent, short circuit, and ground fault protection these circuit breakers provide.

MANUFACTURING PERFORMANCE

The execution of the product design to the finished product is controlled under very strict quality assurance limits. The UL Standard #489 which specifies the test parameters for the product design also includes quarterly and yearly productions tests to assure that production circuit breakers continue to meet the UL Standard and bear the UL label.

UL #489 TEST REQUIREMENTS

Circuit Breakers — 3 Pole 600 V.A.C.

	100A or less	225A	600A	1200A	4000A
GROUP I — Standard U/L Ratings					
1. Calibration — maximum trip time					
200%	6 mins.	8 mins.	12 mins.	18 mins.	24 mins.
125%	2 hrs.	2 hrs.	2 hrs.	2 hrs.	2 hrs.
100%			must not trip		
2. Overload					
Amperes	600	1350	3600	7200	24K 8K
# of operations	50	50	50	50	3 25
3. Temperature — Heat Test at Rated Amperes					
Max. Rise at Terminals	50 C	50 C	50 C	50 C	50 C
4. Endurance Test — number of operations					
Load Amperes	6000	4000	1000	500	400
No Load	4000	4000	5000	2000	1100
Total Operations	10000	8000	6000	2500	1500
5. Recalibration — Same as Test #1 at 200% and 125%					
6. Short Circuit					
Amperes — Common (# of operations)	10K (1)	10K (1)	10K (1)	14K (1)	40K (2)
Amperes — Each pole (# of operations)	8660 (2)	8660 (2)	8660 (2)	12120 (2)	30K (2)
7. Trip Out — Same as Test #1 at 200%					
8. Dielectric — at 2200 Volts for 1 minute					
GROUP II — High Break Ratings					
1. Calibration — Same as Test #1 for GROUP I					
2. Short Circuit①					
240V-O-CO②	65K	65K	65K	65K	200K
480V-O-CO②	25K	25K	35K	50K	100K
600V-O-CO②	18K	22K	25K	25K	85K
3. Recalibration — Same times as for 200% GROUP I					
4. Dielectric — 2X test voltage, 900V minimum for one minute					

① I/C values shown are for GE Hi-Break® circuit breakers only; other breakers may have other I/C ratings.
② O (Open Shot): where circuit breaker is closed and the current flow is initiated by energizing test circuit. CO (Close-Open shot): where circuit breaker is closed and the current flow is initiated by energizing test circuit.

GENERAL

Industrial circuit breaker shall be a circuit interrupting device which will operate both manually for normal switching functions and automatically under overload and short circuit conditions. It is to provide circuit and self protection when applied in its rating. Control and signaling function may be incorporated by the use of accessories.

The operating mechanism shall be entirely trip-free so that the contacts cannot be held closed against an abnormal overcurrent or short-circuit condition.

The operating handle of the circuit breaker shall open and close all poles of a multi-pole breaker simultaneously. These breakers shall meet applicable NEMA and/or UL Laboratories, Inc. specifications. Each circuit breaker shall have a trip unit to provide overload and short-circuit protection. The trip unit for each pole shall have elements providing inverse time delay under overload conditions and instantaneous tripping for short-circuit protection. The trip element shall operate a common trip bar which shall open all poles in case of an overload or short-circuit through any one pole.

THERMAL-MAGNETIC & MAGNETIC ONLY

E150 thru KM 1200 ampere shall be provided with:

- Twist-to-trip provisions for verifying and exercising breaker tripping mechanism.
- Load terminations suitable for copper and/or aluminum termination.

SOLID STATE TRIP DEVICES

200 to 4000 ampere, types VersaTrip and Micro VersaTrip, shall be provided with:

- 100% equipment-rated construction.
- Push-to-trip provisions.
- Integral ground fault with memory circuit.
- Fault trip indication.

CIRCUIT BREAKERS RATED 1600 TO 4000 AMPERE

Shall be provided with:

- Rotary-operated handle mechanism.
- Two-step stored-energy mechanism.
- Local or remote five-cycle closing for manual or electrical breakers.
- Line top or line bottom construction.
- Push-to-trip-provisions.

molded case circuit breakers

Industrial Circuit Breakers	GEA-10665
THQE Circuit Breakers and Terminations	GEA-9755
VersaTrip® for Molded Case Circuit Breakers	GET-6202
Mag Break® Motor Circuit Protectors	GEA-7498
Mine Duty Circuit Breakers	GET-6207
Testing and Maintenance of Molded Case Circuit Breakers	GET-2963

insulated case circuit breakers

Power-Break® Insulated Case Circuit Breakers, Quick Selection	GEA-9752
Power-Break +® Insulated Case Circuit Breakers	GEA-10666

low voltage power circuit breakers

Type AKR Low Voltage Power Circuit Breakers	GEA-10667
Application and Selection of Type AK Low Voltage Power Circuit Breakers	GEA-8733
SST/ECS Test Set	GEK-64454
Renewal Parts Price Bulletin	GEP-1675

ground fault protective products

Ground Fault Circuit Interrupters	GEA-10664
Ground-Break® Systems	GET-2964

safety switches

Spec-Setter™ Safety Switches	GEA-6756
Mill Duty Safety Switches	GEA-9747
Safety Switch Renewal Parts	GEF-4452

disconnect switches

Fusible Disconnects, Operating Handles, and Accessories	GET-2954
Type HPC High Pressure Contact Switches	GET-6205

panelboard components

Fusible Panelboard Units	GEA-7490

circuit breaker load centers

PowerMark +® Circuit Breaker Load Centers—thru 600 amp	GEA-7484
PowerMark +® Riser Panels, Parallel Type	GEA-9494
PowerMark +® Riser Panels, Series Type	GIZ-2362-17
Lightning Protector	GEA-9756
Meter Mod II and Mini Mod II Modular Metering	GEA-9757
Load Center Renewal Parts	GEF-4453

For further information, contact your local General Electric Sales Office,
or write Marketing Communications,
Circuit Protective Devices Department, 41 Woodford Ave., Plainville, CT 06062

GENERAL ELECTRIC

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