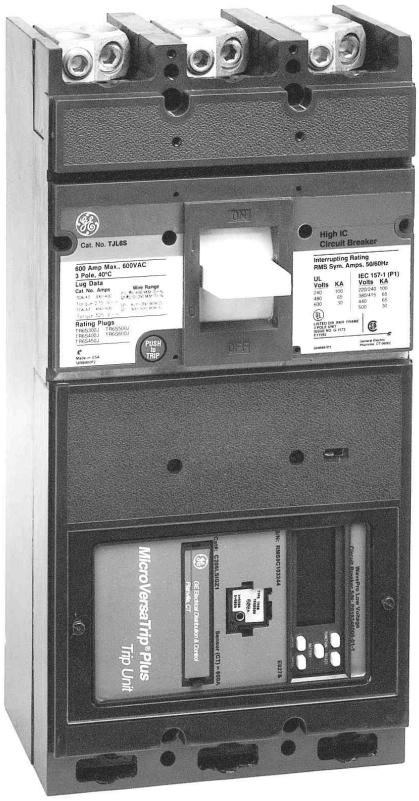
Molded-Case Circuit Breakers

MicroVersaTrip Plus™ Trip Unit in TJH1S, TJH4S, TJH6S, TJL1S, TJL4S, and TJL6S Breakers

Introduction

This publication contains information on mounting dimensions, lugs, internal and external accessories, and trip unit and rating plug selection for K Frame molded-case circuit breakers. It also describes the installation of neutral current sensors for ground-fault protection.



Lug Selection

Circuit breakers are provided without lugs. The available lugs are listed in Table 1.

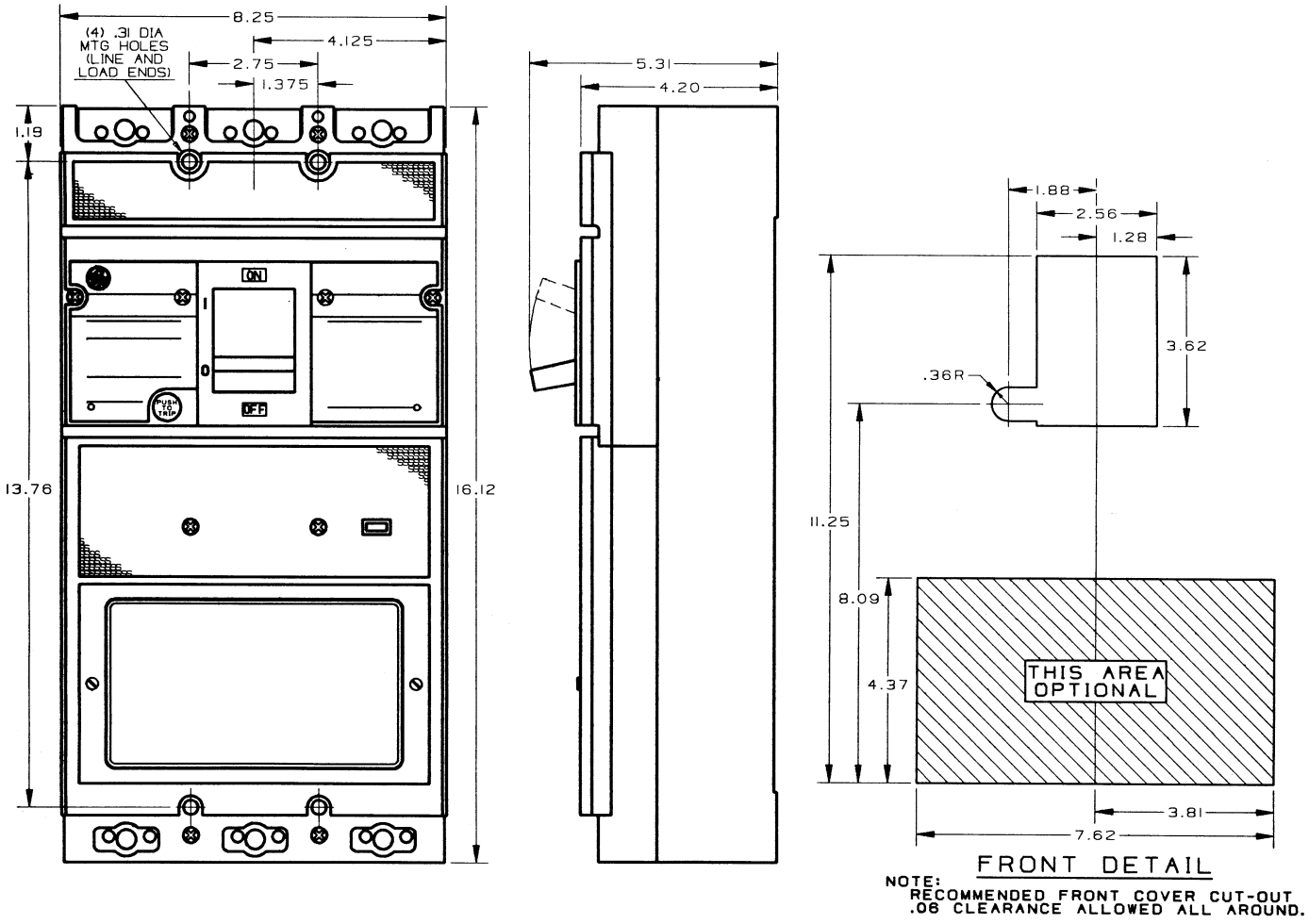
Wire ranges are as follows:

- TCAL43: (1) 6–600 MCM or (2) 2/0–250 MCM
- TCOL43: (1) 6–600 MCM or (2) 2/0–250 MCM
- TCAL63: (2) 4/0–350 MCM Cu or (2) 300–500 MCM Al
- TCOL63: (2) 250–350 MCM

Frame Type	Sensor Rating (Amps)	Rating Plug (Amps)	Standard Lugs Cu/Al Cat. No.	Optional Lugs Cu Cat. No.
J400	150 300 400	All available	TCAL43	TCO43
J600	600	300, 400	TCAL43	TCO43
		450, 500, 600	TCAL63	TCO63

Table 1. Catalog numbers of available lugs.

Outline Drawing for TJH, TJL



Internal Accessories

Internally mounted accessories are UL listed and field installable, except for the bell alarm, which is only factory installed. Available accessories are listed in Table 2.

For detailed information on accessory applications, see the GE BuyLog, GEP-1100, and GEP-746.

Accessory Installation	Pole Mounting			Lead Exit		Total No. of Accessories Within Any One Breaker
	Left	Center	Right	Side①	Back②	
Auxiliary Switches			X	X	X	Any One plus Bell Alarm
Shunt Trip			X	X	X	
Bell Alarm Switch		X		X	X	
Undervoltage Release			X	X	X	
Combination Shunt Trip with Aux Sw			X	X	X	
Combination Undervoltage with Aux Sw			X	X	X	

① UL listed.

② Not UL listed.

Table 2. Available internal accessories and mounting positions.

External Accessories

- Motor-operated mechanisms
- Back-connected studs
- Plug-in and bolt-on bases for 100%-rated breakers
- Mechanical interlocks
- Padlocking devices
- Handle operator
  - TDA: flange mounted, variable depth
  - TDM: door mounted, variable depth
  - TDR: integral mechanism, fixed depth

For a complete listing of external accessories, see the GE BuyLog, GEP-1100, and GEP-746.

Trip Unit Selection

MicroVersaTrip Plus™ trip unit functions available in J Frame breakers are listed in Table 3.

For detailed information on trip unit selection, see GE publication GEH-6273.

C 2 04 LSI G Z1 R

Code	Description	Function
C	Power Break, J Frame, K Frame	Breaker Type
2	2000 A maximum CT	Breaker Frame
01	150 A	Installed CT
04	400 A	
06	600 A	
L	Long-time (standard)	Overcurrent Protection
S	Short-time	
I	Instantaneous	
G①	Ground fault	Ground Fault Protection
Z1②	Ground-fault zone-selective interlock	Optional Functions
Z2②	Ground fault and short-time ZSI	
R	Replacement trip unit	Replacement

① For single-phase, 3-wire or 3-phase, 4-wire applications, order appropriate neutral sensor.

② Requires purchase of zone-selective interlock module(s) type T1M1 (120 Vac control voltage).

Table 3. Catalog number options for MicroVersaTrip Plus™ trip units available with J Frame circuit breakers.

Rating Plug Selection

Rating plugs available with MicroVersaTrip Plus™ trip units in J Frame breakers are listed in Table 4.

Frame Type	Sensor Rating, A	Current Rating, A	Rating Plug Cat. No.
J600	150	60	TR1B60
		80	TR1B80
		100	TR1B100
		125	TR1B125
		150	TR1B150
	400	150	TR4B150
		200	TR4B200
		225	TR4B225
		250	TR4B250
		300	TR4B300
		400	TR4B400
	600	300	TR6B300
		400	TR6B400
		450	TR6B450
		500	TR6B500
		600	TR6B600

Table 4. Rating plugs available with MicroVersaTrip Plus™ trip units in J Frame breakers.

Test Kit, Cat. No. TVRMS2

The portable, battery-powered test kit provides for MicroVersaTrip Plus or PM unit self-tests and functional trip/no-trip tests. It also provides for defeat of the ground-fault function and can be used in conjunction with high-current test equipment. Interface is via a plug on the front of the trip unit and tests can be conducted with the breaker in service. The kit can also be powered by a 120 Vac source.

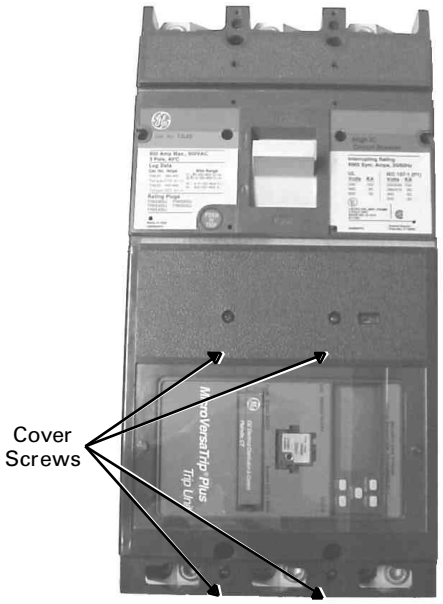
Application Information

For information on derating, time-current curves, inspection, and testing, refer to GE publication GET-2779.

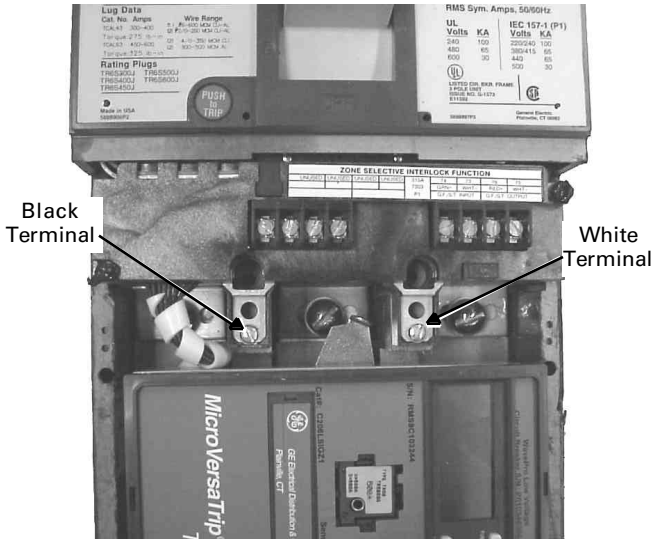
Neutral Current Sensor Connection

A neutral current sensor must be used for ground-fault protection on all single-phase, three-wire systems and three-phase, four-wire systems.

1. Remove the four screws that hold the lower half of the circuit breaker cover in place.



2. Lift off the lower half of the circuit breaker cover.
3. Attach the leads of the current sensor to the terminations shown in the illustration. The vertical surfaces of the terminals closest to the trip unit are labeled BLACK and WHITE on the left and right sides of the breaker, respectively. Maintain the proper polarity by connecting the black wire to the black connector and the white wire to the white connector. Use #14 AWG (minimum) twisted-pair insulated conductors.



4. File break-out locations in the bottom cover with a circular file. Route the ground-fault leads out the bottom cover, being careful not to pinch the leads.
5. Replace the breaker cover, then replace the lug cover, attaching both with the fasteners removed in step 1. Tighten the screws to 14–20 in-lb.

These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, the matter should be referred to the GE Company.

GE Industrial Systems

General Electric Company
41 Woodford Ave., Plainville, CT 06062

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