



Molded-Case Circuit Breakers

MicroVersaTrip Plus™ Trip Unit in TKH8S, TKH12S, TKL8S, and TKL12S Breakers

Introduction

This publication contains information on mounting dimensions, lugs and lug covers, internal and external accessories, and trip unit and rating plug selection for K Frame molded-case circuit breakers, as shown in Figure 1. It also describes the installation of neutral current sensors for ground-fault protection.

Lug and Lug Cover Selection

Circuit breakers are provided without lugs and with end covers (suitable for bus connections). The available lugs and lug covers are listed in Table 1.

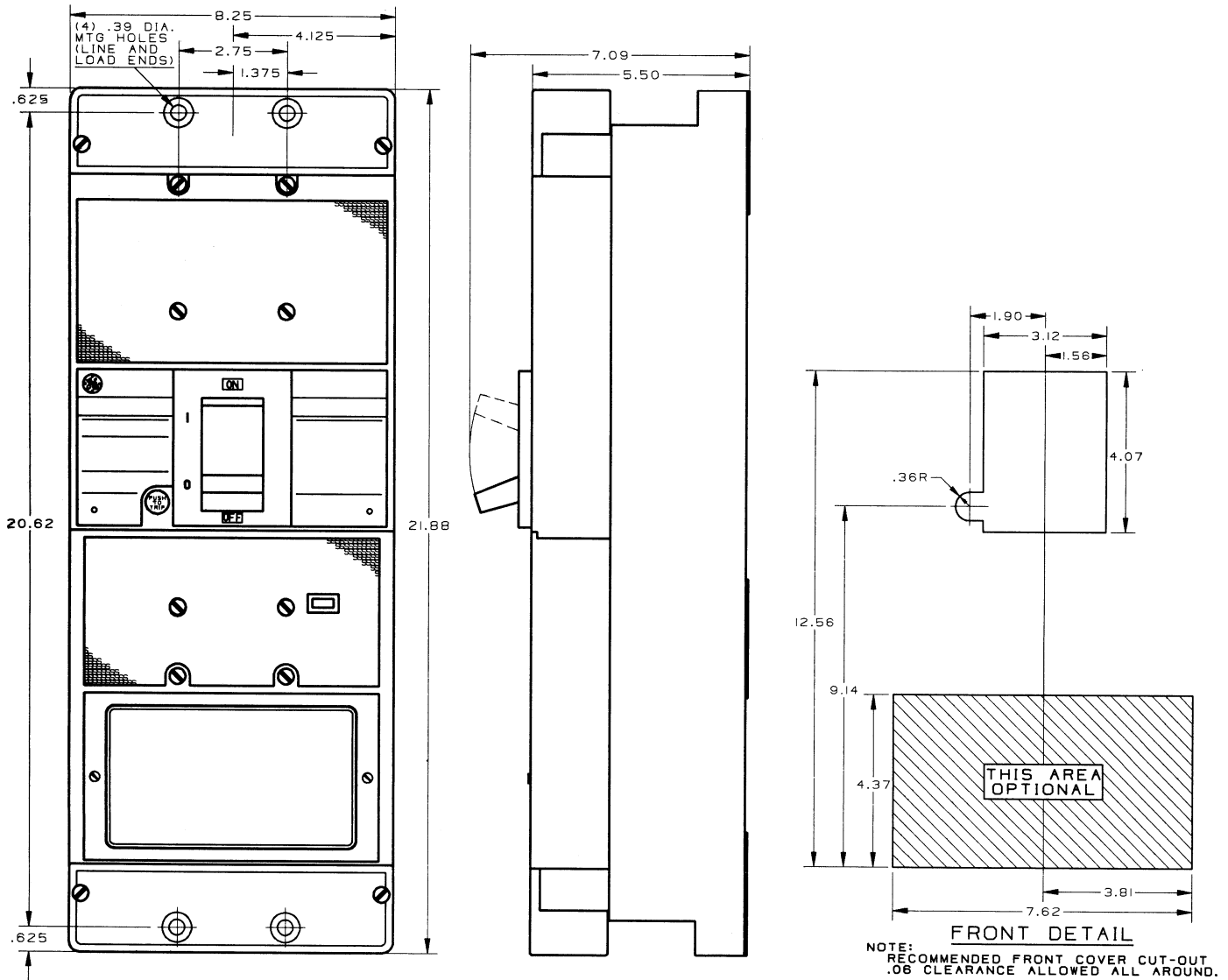
- Lug covers are used with lug connectors.
- End covers are used when connecting a bus to the breaker.
- Wire ranges:
 - TCAL81: (3) 3/0–500 MCM Cu/Al
 - TCO81A: (3) 3/0–500 MCM Cu
 - TCAL121: (4) 250–350 MCM Cu or 250–500 MCM Al
 - TCO121: (4) 250–400 MCM Cu



Frame Type	Sensor Rating (Amps)	Rating Plug (Amps)	Standard Lugs Cu/Al Cat. No.	Optional Lugs Cu Cat. No.	Lug Covers Cat. No.	End Covers Cat. No.
1200	800	All available	TCAL81	TCO81A	286A8066G3	286A8066G2
	1200	All available	TCAL121	TCO121	286A8066G1	286A8066G2

Table 1. Catalog numbers of lugs, lug covers, and end covers.

Outline Drawing for TKH8S, TKH12S, TKL8S, TKL12S



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	Side ^①	Back ^②	
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 K Frame breakers are listed in Table 3.

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

Code	Description	Function
C	Power Break, J Frame, K Frame	Breaker Type
2	2000 A maximum CT	Breaker Frame
08	800 A	Installed CT
12	1200 A	
L	Long-time (standard)	Overcurrent Protection
S	Short-time	
I	Instantaneous	
G ^①	Ground fault	Ground Fault Protection
Z1 ^②	Ground-fault zone-selective interlock	Optional Functions
Z2 ^②	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 K Frame circuit breakers.

Rating Plug Selection

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

Frame Type	Sensor Rating, A	Current Rating, A	Rating Plug Cat. No.
K800	800	300	TR8B300
		400	TR8B400
		500	TR8B500
		600	TR8B600
		700	TR8B700
		800	TR8B800
K1200	1200	600	TR12B600K
		800	TR12B800K
		1000	TR12B1000K
		1200	TR12B1200K

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

Test Kit, Cat. No. TVRMS2

The portable, battery-powered test kit provides for MicroVersaTrip Plus or PM trip 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.

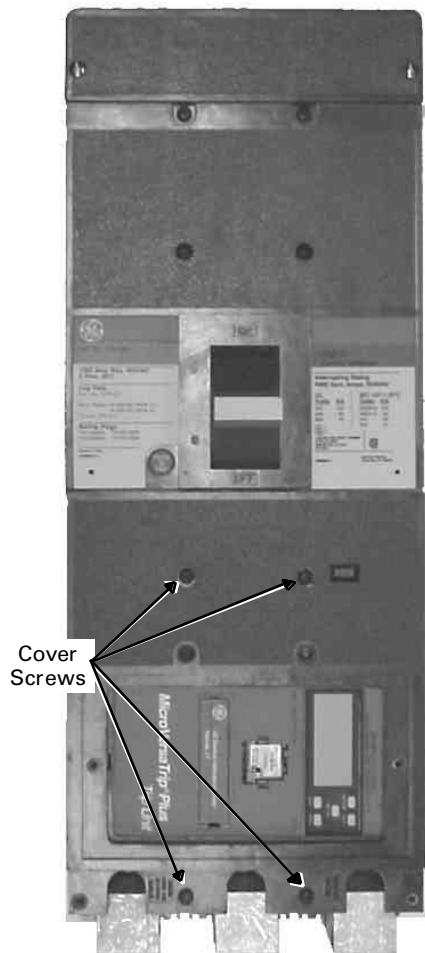
Application Information

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

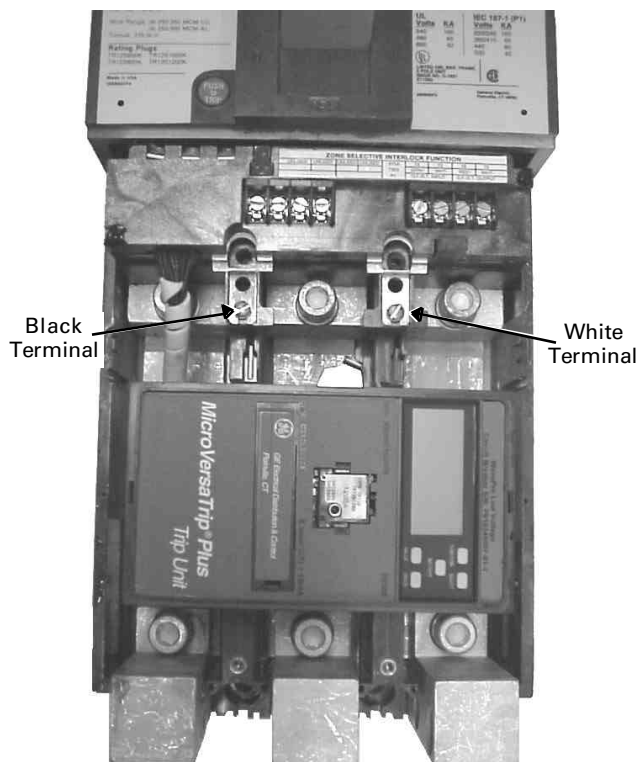
Neutral Current Sensor Connection

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 two screws that hold the lug cover in place, then remove the lug cover.
2. Remove the four screws that hold the lower part of the breaker cover in place.



3. Lift off the lower part of the breaker cover.
4. 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.



5. 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.
6. Replace the breaker cover, then replace the lug cover, attaching both with the fasteners removed in steps 1 and 2. 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.



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