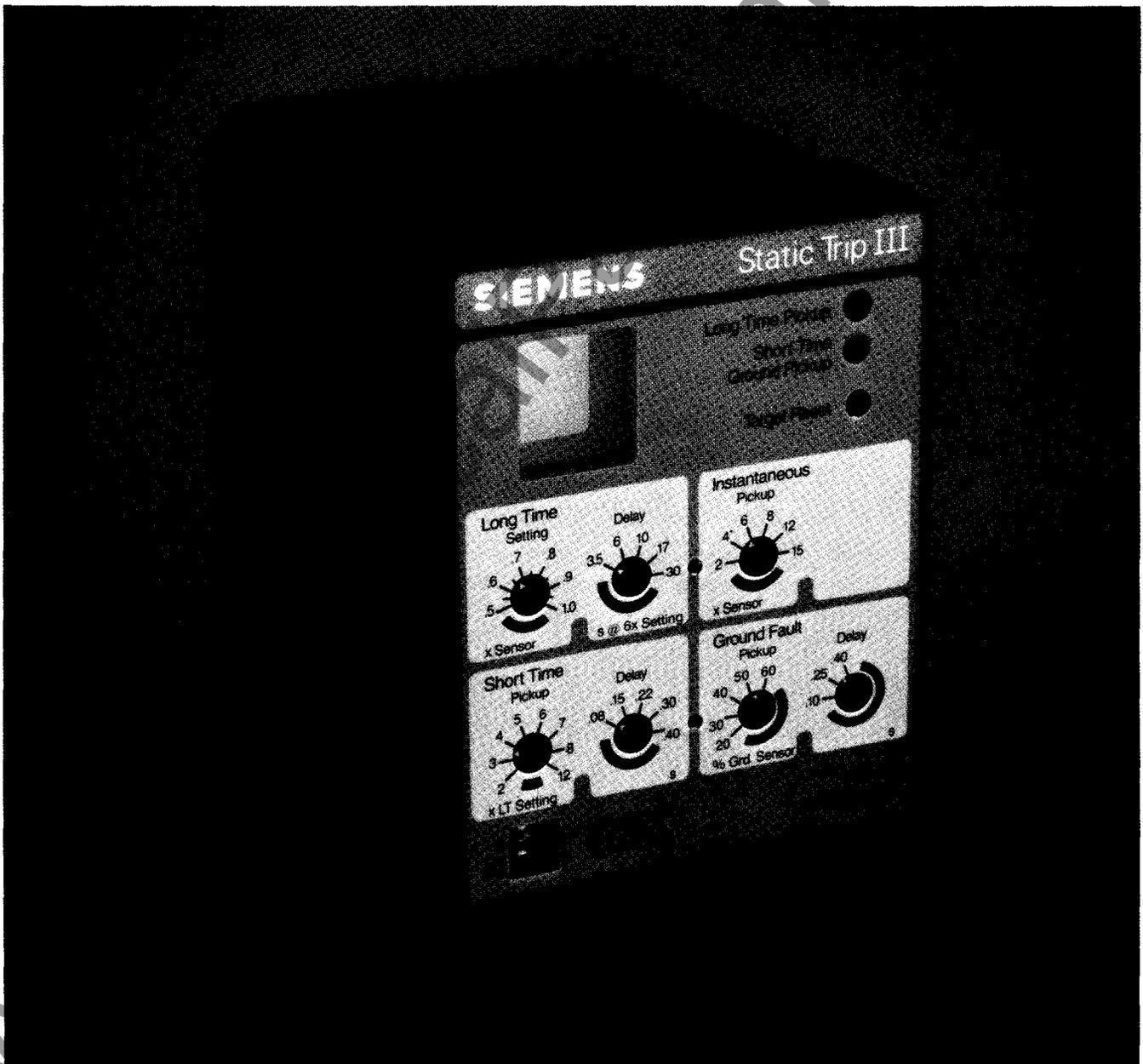


SIEMENS

Microprocessor-Based Tripping System

Static Trip III



A Revolutionary Advance In Equipment Protection.

Siemens, a pioneer in electronics technology, now provides the highest level of equipment monitoring and protection with the Static Trip III family of trip units for RL low voltage power circuit breakers. The Static Trip III microprocessor-based trip unit provides the degree of accuracy, responsiveness and dependability that investment conscious operators want as insurance against damage in their equipment. Its performance features alone would make the Static Trip III trip device a superior choice for new equipment or retrofitting, but its best feature is the company that stands behind it—Siemens, known for leadership, quality manufacture and excellent service in power products.

RMS Sensing For True Current Measurement

By digitally sampling the entire electrical wave the Static Trip III trip device accurately measures true RMS current value. The harmonics caused by variable speed drive systems, induction heating and other SCR-controlled loads cannot produce nuisance tripping or inadequate thermal protection.

Thermal Memory For Accurate Overload Response

Switchable "thermal memory" offers the best basic circuit protection available by remembering the heating effects of intermittent overloads and eliminating the need for separate thermal overload relays.

1200A Maximum Ground Fault Pickup Meets NEC

Meeting the NEC 1200A maximum ground fault setting in section 230-95 becomes a simple matter because the pickup values are a percentage of the ground sensor rating of each breaker. An integral ground sensor winding is provided for current sensors above 2000A so that the trip unit itself remains the same and the full adjustment of ground fault pickup values is available. This feature facilitates the specification and application of the Static Trip III trip device.

LCD Targets And Microprocessor Watchdog For Quick Readouts

An optional liquid crystal display (LCD) indicates the source of the problem which may have tripped a breaker: OVERLOAD, SHORT CIRCUIT, or GROUND FAULT. The word DISABLED, indicates that the continuous self-check watchdog feature has found a program execution error in the microprocessor, and the unit should be taken out of service.

Self-Powered Tripping For Added Security

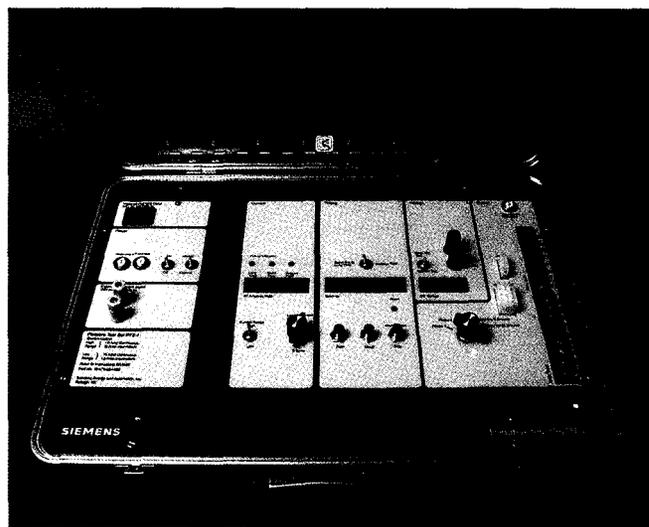
Static Trip III trip devices are completely self-powered so no external source of power is required to trip the circuit breaker. The output of the Static Trip III trip device provides energy to a flux shifting tripping actuator which will mechanically trip the circuit breaker.

Long Time Pickup LED Signals Overload

All Static Trip III units feature an LED readout to indicate the threshold of long time pickup. When the circuit breaker is approaching an overload status the light flashes. A steady light indicates that the trip unit has reached pickup current and is timing out.

Portable Test Set For Maintenance Convenience

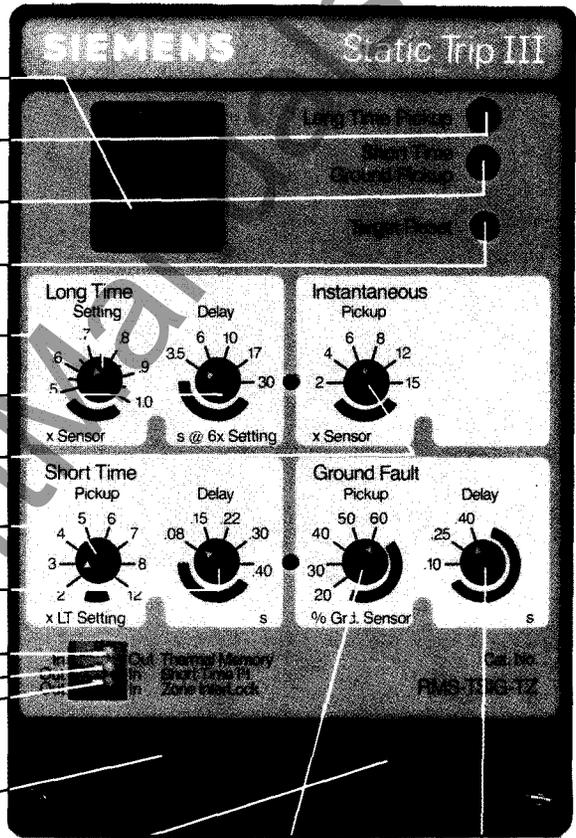
Maintenance checks for current sensing capability on Static Trip III units or earlier generation LimiTrip or Static Trip II units can be accomplished with the portable test set without removing those units from the circuit breakers. Units may be removed and tested separately. The circuit breaker tripping actuator may be exercised with or without the trip unit in place.



Retrofit With Static Trip III Trip Devices To Upgrade Protection

To accommodate increased system demands and the effects of harmonics the Static Trip III trip devices are available for convenient retrofitting in existing equipment. Retrofitting upgrades system protection to the highest levels.

- Electronic LCD Target
- Long Time Pickup LED
- Short Time/Ground Fault Pickup LED
- Target Reset
- Long Time Continuous Current Setting
- Long Time Delay Band Setting
- Instantaneous Pickup Setting
- Short Time Pickup Setting
- Short Time Delay Band Setting
- Thermal Memory Switch
- Short Time I²t Ramp Switch
- Zone Interlock Switch
- Output for Load Indicator Option
- Zone Interlocking Input/Output and Future Options



- Ground Fault Pickup Setting
- Ground Fault Delay Band Setting

Static Trip III Features

Long Time Current Setting

The adjustable continuous current setting may be placed at eleven different points between .5 and 1.0 times the current sensor rating. This allows the circuit breaker to operate continuously at the set rating without tripping on overcurrent. Long time pickup is fixed at 1.1 times the current setting \pm 10% bandwidth.

Long Time Delay

Five different time delay bands allow a wide range of adjustment for circuit breaker tripping in response to sustained overload conditions. Long time delay settings are from 3.5 to 30 seconds at 6 times the current setting. Time delay is calibrated at the minimum of the time delay band width.

Thermal Memory Switch

Switchable thermal memory eliminates the need for additional overload relays and provides better equipment and system protection through faster reaction to potentially dangerous intermittent overload conditions. The Thermal Memory Function "remembers" momentary overload conditions and trips the circuit when the accumulated time delay exceeds the long time delay setting.

Instantaneous Pickup

Fault currents in excess of the pickup setting cause the circuit breaker to trip without intentional time delay. Adjusts from 2 to 15 times the current sensor rating for all circuit breaker frame sizes.

Short Time Pickup And Delay

Provides maximum flexibility in coordinating with downstream protective devices for optimum system protection. Short Time pickup may be set from 2 to 12 times the long time current setting. Short Time Delay may be set on any of its five bands from .08 to .40 seconds to control the delayed tripping of the circuit breaker at high current levels so downstream devices may clear short circuit faults first.

Short Time I²t Switch

Replaces the square knee of the short time pickup and delay curve with a ramp function to provide closer coordination with downstream devices including thermal magnetic breakers and fuses.

Ground Fault Pickup And Delay

Three time delay bands are available for coordinated tripping with downstream protective devices. A memory function protects against intermittent arcing faults. Pickup is adjustable in five steps from 20% to 60% of ground sensor rating. The ground sensor rating equals the current sensor rating through 2000A. An integral ground sensor winding is provided for current sensor above 2000A so that the trip unit remains the same and the full adjustment of ground fault pickup values is available. Ground fault pickup is limited to 1200A maximum to insure compliance with the NEC Article 230-95 for service entrance application. The LCD target and microprocessor watchdog are automatically included when the Ground Fault option is specified.

Ground Fault I²t

Included with the Ground Fault and Pickup Delay option, eliminates the square knee of the pickup and delay curve and replaces it with an I²t ramp to allow better coordination with downstream protective devices.

Short Time/Ground Fault Pickup LED

A testing convenience provided with the ground fault and/or short time options.

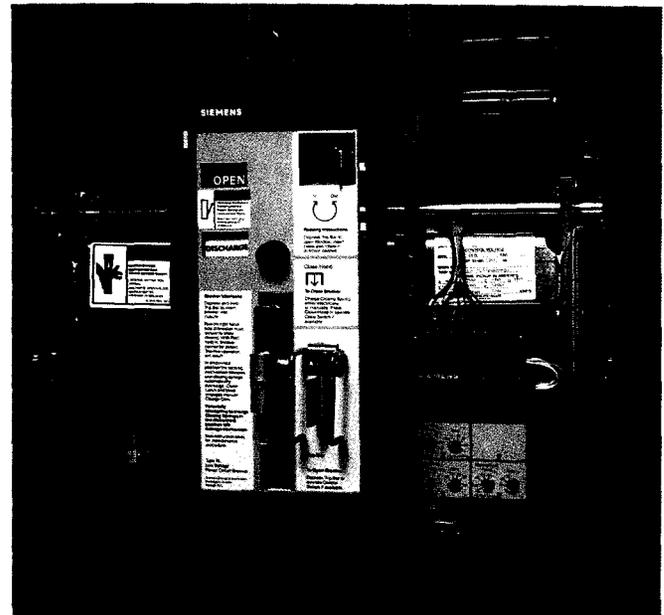
Short Time/Ground Fault Zone Interlocking

Available for both short time and ground fault functions to provide the quickest opening times while maintaining selectivity. With Zone Interlocking, trip units share information about a fault's location and direct the circuit breaker closest to the fault to trip at minimum

time delay. An IN/OUT switch allows the Static Trip III trip unit to be used as a standard device when not part of an interlocking system. Completely self-powered zone interlock couplers and zone interlock expanders are used to connect feeder and main circuit breakers together into a selective interlocked system.

Load Indicator

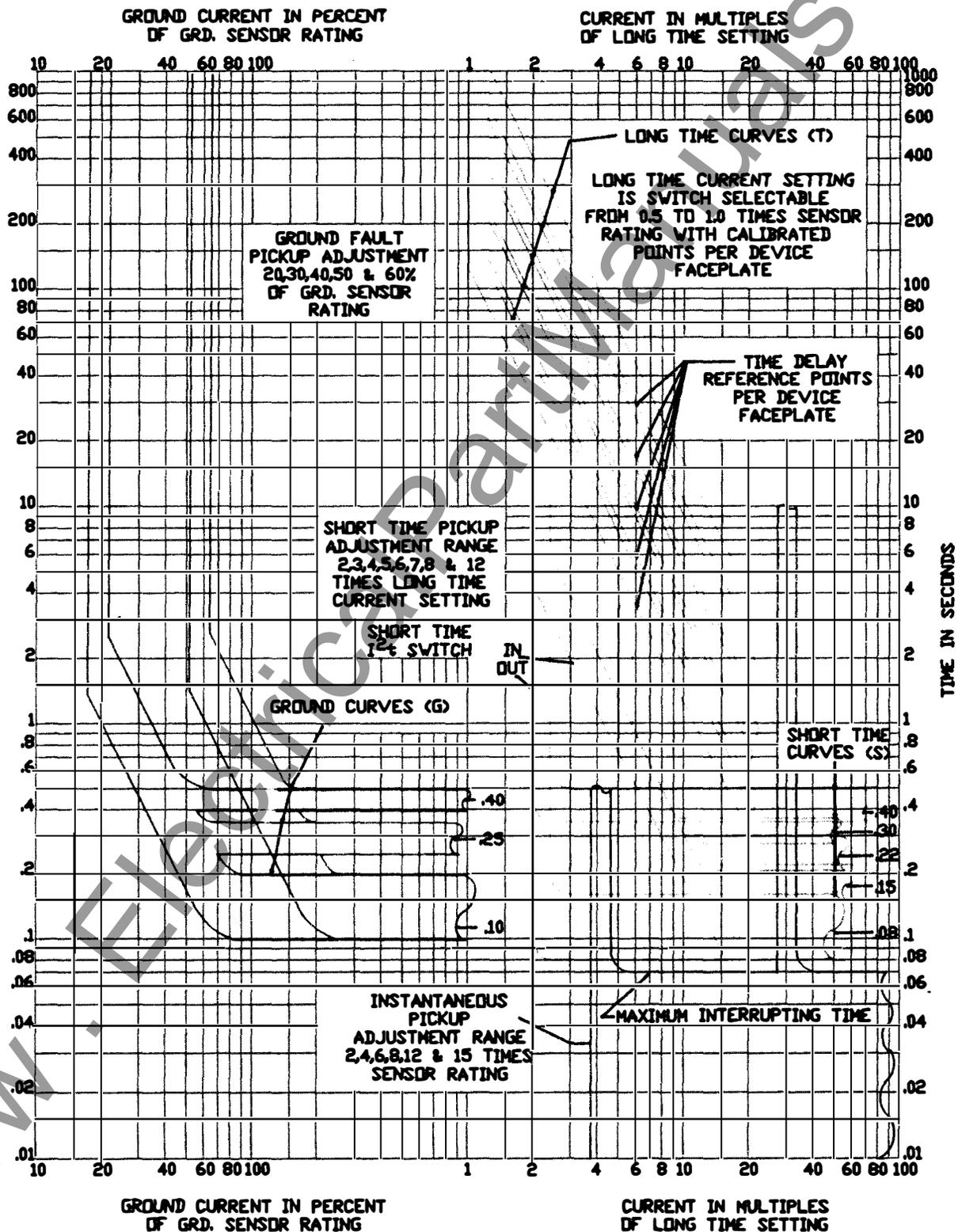
Available separately, and mounted on the front cover of the circuit breaker so it can be easily observed, this LED bar graph displays the highest phase load current being measured by the Static Trip III trip device. Functionally replacing panel meters, Load Indicators allow the matching of actual load current to the protective current settings of the trip unit. Measurement shows the load current starting at .6 and going to 1.4 times the trip unit's Long Time pickup current value. An adjustable load alarm is included in order to trigger a remote signal before the Static Trip III unit begins its timing out function.



UL Listing

All Static Trip III trip devices are UL listed and have also successfully passed rigorous in house reliability testing.

Time Current Characteristics



Static Trip III SPECIFICATION GUIDE

Each low voltage power circuit breaker shall be equipped with a completely self powered microprocessor-based trip device to sense overload and short circuit conditions. Trip devices shall be interchangeable so that any trip device can be used with any frame size circuit breaker. The device shall measure true RMS currents. Peak sensing devices will not be accepted. The trip device shall include a switchable thermal memory to provide protection against intermittent overload conditions.

All current and time delay band switches on the trip device shall be sealed binary coded (BCD) type with positive detents. All switch contacts shall be gold plated.

Eleven long time current settings shall be available to provide adjustment from .5 to 1.0 times the circuit breaker current sensor rating. Long time pickup shall be fixed at 1.1 times current setting selected. A long time pickup LED shall be standard. Five long time delay bands shall be provided. Devices that require current setting adjustment as a function of a removable rating plug will not be acceptable.

Short time pickup shall be adjustable from 2 to 12 times current setting selected. Five short time delay bands shall provide adjustment from .08 to .40 seconds. A switchable I^2t ramp shall be standard with the short time function.

Instantaneous tripping shall be adjustable from 2 to 15 times current sensor rating selected. This adjustment range shall be provided regardless of circuit breaker frame size.

Ground fault pickup shall be adjustable from 20% to 60% of ground sensor rating. It shall not be possible to exceed a 1200 amp maximum pickup. Three time delay bands and an I^2t ramp shall be included when ground fault protection is provided.

An LCD electronic target shall be provided to indicate trip from overload, short circuit or ground fault. A continuous self-checking watchdog circuit shall be provided to monitor and indicate improper operation of the microprocessor.

Zone interlocking shall be included for short time and ground fault functions. Zone interlock connections between breakers shall be opto-isolated. Zone interlock modules requiring control power will not be accepted.

An LED load indicator shall be visible with the front door closed to give a visual check of current as a percentage of pickup. An adjustable remote alarm contact shall be available for indication of current as a percentage of long time pickup from 60% to 140%.

A portable test set shall be provided to test trip units over their full range of adjustment. This device shall be capable of testing a trip device separately or mounted on a circuit breaker, and shall be capable of exercising the tripping actuator.

Trip unit functions shall be provided on each breaker as specified by the customer on the chart below:

Check appropriate box for features desired.

Functions	Main Breakers	Tie Breakers	Feeder Breakers
Long Time	X	X	X
Short Time			
Ground Fault			
Instantaneous			
LCD Target With Microprocessor Watchdog			
Zone Interlocking			
LED Load Indicator			

Easy Catalog Identification

The Static Trip III trip device is structured to provide maximum application flexibility with a minimum of catalog identifications. Here, the features of each function are defined and may be selected to tailor the trip device to specific application needs.

Description	Function	Features
T	Long Time	Adjustable Current Setting (Pickup fixed at 1.1 x current setting), Adjustable Delay Band, Thermal Memory (in/out), Long Time Pickup LED
S	Short Time	Adjustable Pickup, Adjustable Delay Band, I ² t ramp (in-out), Short Time Pickup LED
I	Instantaneous	Adjustable Pickup
G	Ground Fault	Adjustable Pickup (% ground sensor), Adjustable Delay Band, Ground Fault Pickup LED, I ² t Ramp
T	LCD Targets & Microprocessor Watchdog	Target Reset Button, visual display of cause of trip, Microprocessor Watchdog Circuit.
Z	Zone Interlocking	Zone Interlock Switch (in/out)

AVAILABLE COMBINATIONS

CATALOG NUMBER	(T) LONG TIME	(S) SHORT TIME	(I) INST	(G) ² GROUND FAULT	(T) TARGET	(Z) ³ ZONE INTLK
RMS-TI	X		X			
RMS-TI-T	X		X		X	
RMS-TIG-T	X		X	X	X	
RMS-TIG-TZ	X		X	X	X	X
RMS-TS	X	X				
RMS-TS-T	X	X			X	
RMS-TS-TZ	X	X			X	X
RMS-TSG-T	X	X		X	X	
RMS-TSG-TZ	X	X		X	X	X
RMS-TSI	X	X	X			
RMS-TSI-T	X	X	X		X	
RMS-TSI-TZ	X	X	X		X	X
RMS-TSIG-T	X	X	X	X	X	
RMS-TSIG-TZ	X	X	X	X	X	X

¹All devices available with load indicator option—add suffix LTI

²Devices with ground fault include target display for overload, short circuit, ground fault and disabled. All other devices include target display for overload, short circuit and disabled

³Zone interlocking provided for short time and/or ground fault

AVAILABLE SENSOR RATINGS AND DEVICE SETTINGS

Static Trip III Trip Device Settings

FRAME SIZE	MAX AMP RATING	SENSOR RATINGS (AMPS)	(T) LONG TIME			(S) SHORT TIME	
			CURRENT SETTING (MULTIPLE OF SENSOR RATING)	PICK UP (MULTIPLE OF LONG TIME CURRENT SETTING)	DELAY (SECONDS)	PICKUP (MULTIPLE OF LONG TIME CURRENT SETTING)	DELAY (SECONDS)
RL800 RLX800 RLF800	800	150, 200, 300, 400, 600, 800	(11 SETTINGS)	Fixed at 1.1 times LONG TIME CURRENT SETTING	3.5, 6, 10, 17, 30 (minimum of time band at 600% of Long Time Setting)	2, 3, 4, 5, 6, 7, 8, 12	I ² t RAMP 63 at 600% Long Time Setting BANDS .08, .15, 22, .30, .40
RL1600 RLX1600 RLF1600	1600	300, 400, 600, 800, 1200, 1600					
RL2000 RLF2000	2000	800, 1200, 1600, 2000					
RL3200 RLF3200	3200	1200, 1600, 2000, 3200					
RL4000 RLF4000	4000	1600, 2000, 3200, 4000					
			(I) INSTANTANEOUS		(G) GROUND FAULT		
			PICK UP (MULTIPLE OF SENSOR RATING)	PICKUP (% OF GROUND SENSOR RATING)		DELAY (SECONDS)	
			2, 4, 6, 8, 12, 15	20, 30, 40, 50, 60		I ² t RAMP 2 at ground fault pickup BANDS 10, 25, 40	

SIEMENS

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