

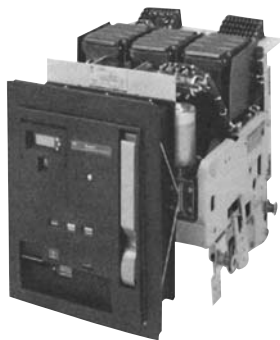
Low Voltage Power and DC Circuit Breakers Section 6

WavePro Circuit Breakers with Power+, Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM Trip Unit Systems



There are three trip unit systems available for WavePro Low Voltage Power Circuit Breakers — Power+, and Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM. All three systems consist of the trip unit, the trip actuator, current sensors and rating plugs. The term “trip unit systems” applies to the combination of these four components, which form the circuit breaker solid-state tripping system.

The Power+ trip unit is the latest addition to the list of trip units available on GE low voltage power circuit breakers. It continues to use GE’s proven technique of measuring true rms currents of both sinusoidal and harmonically distorted waveforms. The frequent sampling (48 times per cycle per phase) allows precise calculations of true rms current. The sampling rate allows waveform measurements up to the 11th harmonic. True rms sensing avoids potential under- or over-protection problems associated with peak-sensing tripping systems.



Enhanced MicroVersaTrip® Plus and MicroVersaTrip® PM trip units also measure true rms currents (and voltages for MicroVersaTrip® PM trip units). The higher sampling rate (64 times per cycle) allows waveform measurements up to the 31st harmonic to achieve accuracy of 99%.

MicroVersaTrip® Plus and MicroVersaTrip® PM trip units contain a digital liquid crystal

display with a five-button keypad for local setup and readout of trip settings. The trip units have a lithium battery for cold setup capability and viewing of targets without external power. The LCD and keypad also provide a three-phase ammeter and trip indicators.

The Enhanced MicroVersaTrip® (MVT) PM trip unit adds power management system capability, including advanced metering and protective relaying, to the basic functions of the MVT Plus. The MVT PM can be interfaced with either Modbus RTU or Ethernet TCP/IP compatible systems.

All trip units utilize a series of interchangeable rating plugs to establish the current rating of the breaker.

Standard functions:

—Rating plug with test port

Protection

—Long-time, Instantaneous (Instantaneous may be omitted when short-time is provided)

The Power+ trip unit is identified by its plug-in modules and rotary switches. The optional “target module” provides LED targets for overload, short circuit and ground fault trips. View and Reset push buttons are also provided to monitor status, including a battery check LED. Standard 3-volt lithium batteries, in the target module, power the indicating LEDs (batteries are not required for trip unit operation). The “rating plug module” serves the dual purpose of establishing the trip rating for the circuit breaker as well as providing ground fault protection when required. All pickup and delay settings are selected with detented rotary switches.

Standard functions:

—Rating plug with test port

Protection

—Long-time, Instantaneous (Instantaneous may be omitted when short-time is provided)

Optional functions:

Protection

—Short-time protection, with selectable I^2t
 —Ground fault protection, with selectable I^2t
 —Defeatable ground fault (not UL)

Target Module

—View and Reset buttons
 —Battery check LED
 —Longtime pickup/trip unit “health” LED
 —LEDs for overload, short circuit, ground fault trips

Status

—Trip target (trip type)
 —Trip information (magnitude and phase)
 —Trip operations counters

Metering display

—Phase current (selectable among phases)

Optional Functions:

—Short-time protection, with selectable I^2t
 —Ground fault protection, with selectable I^2t
 —Defeatable ground fault (not UL)
 —Switchable instantaneous/short-time and ground fault (not UL).
 —Zone-selective interlock, for ground fault only or for both ground fault and short-time protection.

Additional functions available only with MicroVersaTrip® PM trip unit:

—Communication and metering (M-option)
 —Communication, metering and protective relaying (PM-option)

Communication:

—Remote communication with POWER LEADER® Power Management Control System (PMCS) software

Metering:

—Voltage (V), Energy (kWh/MWh/GWh)
 —Real Power (kW/MW), Total Power (kVA/MVA)
 —Demand Power (kW/MW), Peak demand power (kW/MW)
 —Frequency (Hz)

Protective relaying:

—Undervoltage, Overvoltage
 —Voltage unbalance, Current unbalance, Power reversal



Publications and Reference: See Section 22 for a complete list of additional product-related publications

Low Voltage Power and DC Circuit Breakers MicroVersaTrip® Plus and MicroVersaTrip® PM Trip Unit Conversion Kits Selection Guide

For *Allis-Chalmers Power Circuit Breakers
Product Number Structure

ASL6B C 3 F 06 02 PM

Breaker	Model	Wiring	Sensor Type	Sensor Rating	Trip Functions	Options
LA = ASL25 ¹	C = Generation	3 Wire = 3 4 Wire ⁹ = 4	F = Fixed CTs	150A = 01 225A = 02 400A = 04 600A = 06 800A = 08 1600A = 16 2000A = 20 3000A = 30 3200A = 32 4000A = 40	LI = 02 LIG = 03 LSI = 04 LSIG = 05 LS = 06 LSG = 07 LSIGX = 08	Blank = MVT Plus M = MVT PM Metering & Communication PM = MVT PM Metering, Communication & Protective Relaying

Sensor Rating Selection		
Frame	Breaker Product Numbers	Sensors
225	Frame Rating not presently available	150A 225A
600	LA, LA-25, LA-25A LA-600, LAF-600	150, 225A 600A
800	LA-50(800A Version) LA-800, LAF-800 RL-800, RLE-800, RLX-800	150A 400A 800A
1600	LA-50(1600A Version) LA-1600, LAF-1600 RL-1600, RLE-1600, RLX-1600	800A 1600A
2000	RL-2000	2000A
3000	LA-75, LA-3000	3000A
3200	LA-3200, RL-3200	3200A
4000	LA-4000, RL-4000	4000A

Trip Unit Functions	
LI	Long Time & Instantaneous
LIG	Long Time, Instantaneous & Ground Fault
LSI	Long Time, Short Time & Instantaneous
LSIG	Long Time, Short Time Instantaneous & Ground Fault
LS	Long Time, Short Time
LSG	Long Time, Short Time & Ground Fault
LSIGX	Long Time, Short Time/Inst. & Switchable Ground Fault (off), not approved for a UL Listed breaker

Definitions:

- Blue = Blue-Gray color version breaker with plastic escutcheon.
- Gold = Gold color version breaker with metal escutcheon.
- ¹Contact factory for availability.
- ²Only applicable for Blue-Gray color version breakers.
- ³Applicable to both "A" and "B" version breakers.
- ⁴Applicable to both nameplated versions of integral fused breakers (i.e. LA-600F and LAF-600).
- ⁵Only applicable for Gold color version breakers.
- ⁶800-amp version of the LA-50 breaker.
- ⁷Only applicable for 1600-amp, 6-pole primary disconnect version of the LA-50 breaker.
- ⁸Only applicable for 1600-amp, 12-pole primary disconnect version of the LA-50 breaker.
- ⁹Only applicable to trip units with ground fault.

Price Selection

For the desired product number from the chart above. Match the product prefix with the product numbers in the first column of the 3-wire or 4-wire table. Select the options column that matches the product suffix chosen. The list price is found in the intersecting box.

Kits Without Sensors

For kits ordered without sensors, deduct \$450.00 from the list price of the kit with sensors. Please refer to the sensor rating column above for the appropriate "X" sensor code.

MicroVersaTrip® Trip Unit Conversion Kits for 3-Phase, 3-Wire

Product Number	MicroVersaTrip® Plus List Price, GO-104B							
	02	03	04	05	06	07	08	
ASL25C3F01								
ASL25C3F02								
ASL25C3F06								
ASL2AC3F01								
ASL2AC3F02								
ASL2AC3F06	\$2820	\$3250	\$2940	\$3370	\$2940	\$3370	\$3915	
ASL6BC3F01								
ASL6BC3F02								
ASL6BC3F06								
ASL6GC3F01								
ASL6GC3F02								
ASL6GC3F06								
ASL58C3F01								
ASL58C3F04								
ASL58C3F08								
ASL80C3F01								
ASL80C3F04								
ASL80C3F08								
ASR80C3F01								
ASR80C3F04								
ASR80C3F08								
ASL51C3F08	\$2970	\$3400	\$3090	\$3520	\$3090	\$3520	\$4065	
ASL51C3F16								
ASL52C3F08								
ASL52C3F16								
ASL1BC3F08								
ASL1BC3F16								
ASL1GC3F08								
ASL1GC3F16								
ASR16C3F08								
ASR16C3F16								
ASR0C3F20								
ASL75C3F30								
ASL30C3F30								
ASL3BC3F32								
ASL3GC3F32	\$3420	\$3850	\$3540	\$3970	\$3540	\$3970	\$4515	
ASR32C3F32								
ASL4BC3F40								
ASL4GC3F40								
ASR40C3F40								

Product Number	MicroVersaTrip® PM Metering & Communication List Price, GO-104B							
	02M	03M	04M	05M	06M	07M	08M	
ASL25C3F01								
ASL25C3F02								
ASL25C3F06								
ASL2AC3F01								
ASL2AC3F02								
ASL2AC3F06	\$4320	\$4750	\$4440	\$4870	\$4440	\$4870	\$5415	
ASL6BC3F01								
ASL6BC3F02								
ASL6BC3F06								
ASL6GC3F01								
ASL6GC3F02								
ASL6GC3F06								
ASL58C3F01								
ASL58C3F04								
ASL58C3F08								
ASL80C3F01								
ASL80C3F04								
ASL80C3F08								
ASR80C3F01								
ASR80C3F04								
ASR80C3F08								
ASL51C3F08	\$4470	\$4900	\$4590	\$5020	\$4590	\$5020	\$5565	
ASL51C3F16								
ASL52C3F08								
ASL52C3F16								
ASL1BC3F08								
ASL1BC3F16								
ASL1GC3F08								
ASL1GC3F16								
ASR16C3F08								
ASR16C3F16								
ASR0C3F20								
ASL75C3F30								
ASL30C3F30								
ASL3BC3F32								
ASL3GC3F32	\$4920	\$5350	\$5040	\$5470	\$5040	\$5470	\$6015	
ASR32C3F32								
ASL4BC3F40								
ASL4GC3F40								
ASR40C3F40								

Conversion kits come standard with a rating plug that matches the current sensor. For rating plugs with different values, price and order separately. See page 6-39.

*Allis-Chalmers is a trademark of Allis-Chalmers Manufacturing Company Corporation.



Publications and Reference: See Section 22 for a complete list of additional product-related publications

Low Voltage Power and DC Circuit Breakers

MicroVersaTrip® Plus and MicroVersaTrip® PM Trip Unit

Conversion Kits Selection Guide

Section 6

For *Allis-Chalmers Power Circuit Breakers

MicroVersaTrip® Trip Unit Conversion Kits for 3-Phase, 3-Wire

MicroVersaTrip® Trip Unit Conversion Kits for 3-Phase, 4-Wire

Product Number	MicroVersaTrip® PM Metering, Communication, and Protective Relay List Price, GO-104B							Product Number	MicroVersaTrip® Plus List Price, GO-104B				MVT PM Metering & Communication List Price, GO-104B				MVT PM Metering, Comm. & Prot. Relay List Price, GO-104B			
	02PM	03PM	04PM	05PM	06PM	07PM	08PM		03	05	07	08	03M	05M	07M	08M	03PM	05PM	07PM	08PM
ASL25C3F01								ASL25C4F01												
ASL25C3F02								ASL25C4F02												
ASL25C3F06								ASL25C4F06												
ASL2AC3F01								ASL2AC4F01												
ASL2AC3F02								ASL2AC4F02												
ASL2AC3F06	\$5020	\$5450	\$5140	\$5570	\$5140	\$5570	\$6115	ASL2AC4F06	\$3475	\$3595	\$3595	\$4140	\$4975	\$5095	\$5095	\$5640	\$5675	\$5795	\$5795	\$6340
ASL6BC3F01								ASL6BC4F01												
ASL6BC3F02								ASL6BC4F02												
ASL6BC3F06								ASL6BC4F06												
ASL6GC3F01								ASL6GC4F01												
ASL6GC3F02								ASL6GC4F02												
ASL6GC3F06								ASL6GC4F06												
ASL58C3F01								ASL58C4F01												
ASL58C3F04								ASL58C4F04												
ASL58C3F08								ASL58C4F08												
ASL80C3F01								ASL80C4F01												
ASL80C3F04								ASL80C4F04												
ASL80C3F08								ASL80C4F08												
ASR80C3F01								ASR80C4F01												
ASR80C3F04								ASR80C4F04												
ASR80C3F08								ASR80C4F08												
ASL51C3F08	\$5170	\$5600	\$5290	\$5720	\$5290	\$5720	\$6265	ASL51C4F08	\$3625	\$3745	\$3745	\$4290	\$5125	\$5245	\$5245	\$5790	\$5825	\$5945	\$5945	\$6490
ASL51C3F16								ASL51C4F16												
ASL52C3F08								ASL52C4F08												
ASL52C3F16								ASL52C4F16												
ASL1BC3F08								ASL1BC4F08												
ASL1BC3F16								ASL1BC4F16												
ASL1GC3F08								ASL1GC4F08												
ASL1GC3F16								ASL1GC4F16												
ASR16C3F08								ASR16C4F08												
ASR16C3F16								ASR16C4F16												
ASR0C3F20								ASR0C4F20												
ASL75C3F30								ASL75C4F30												
ASL30C3F30								ASL30C4F30												
ASL3BC3F32								ASL3BC4F32												
ASL3GC3F32	\$5620	\$6050	\$5740	\$6170	\$5740	\$6170	\$6715	ASL3GC4F32	\$4075	\$4195	\$4195	\$4740	\$5575	\$5695	\$5695	\$6240	\$6275	\$6395	\$6395	\$6940
ASR32C3F32								ASR32C4F32												
ASL4BC3F40								ASL4BC4F40												
ASL4GC3F40								ASL4GC4F40												
ASR40C3F40								ASR40C4F40												

Conversion kits come standard with a rating plug that matches the current sensor. For rating plugs with different values, price and order separately. See page 6-39.

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