



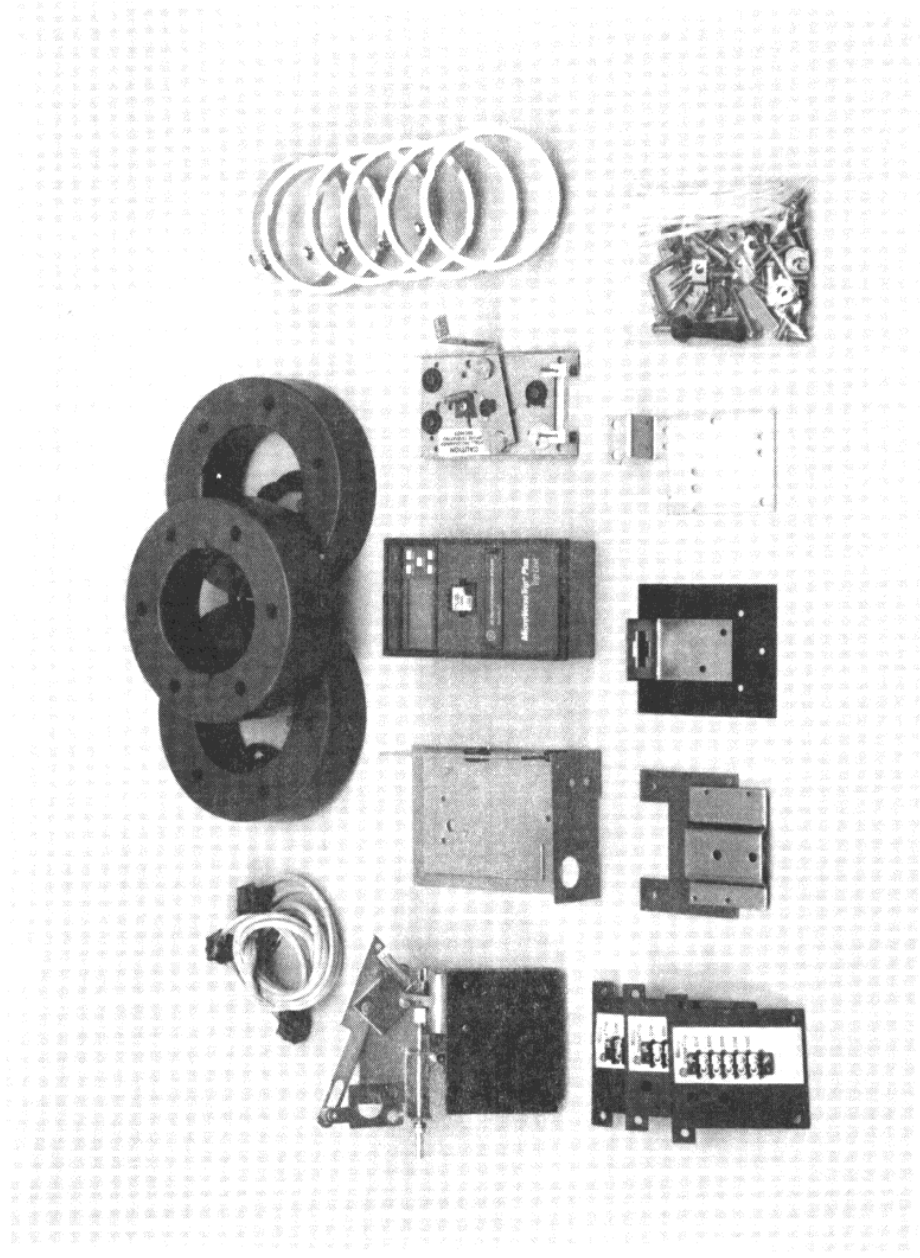
Electrical Distribution & Control

Air Circuit Breaker Conversion Kits

MicroVersaTrip® Plus & PM Low Voltage Power Circuit Breaker Conversion Kits



What is a conversion kit?



With a GE Conversion Kit, everything is provided to retrofit a low voltage power circuit breaker.



Why Convert?

- **Improve system reliability**
- **Reduce maintenance & downtime costs**
- **Extend equipment life**
- **Enhance system coordination & protection**
- **Provide energy management capability**

**A GE MicroVersaTrip® Plus or PM Conversion Kit will
improve your system flexibility while maintaining
system integrity.**

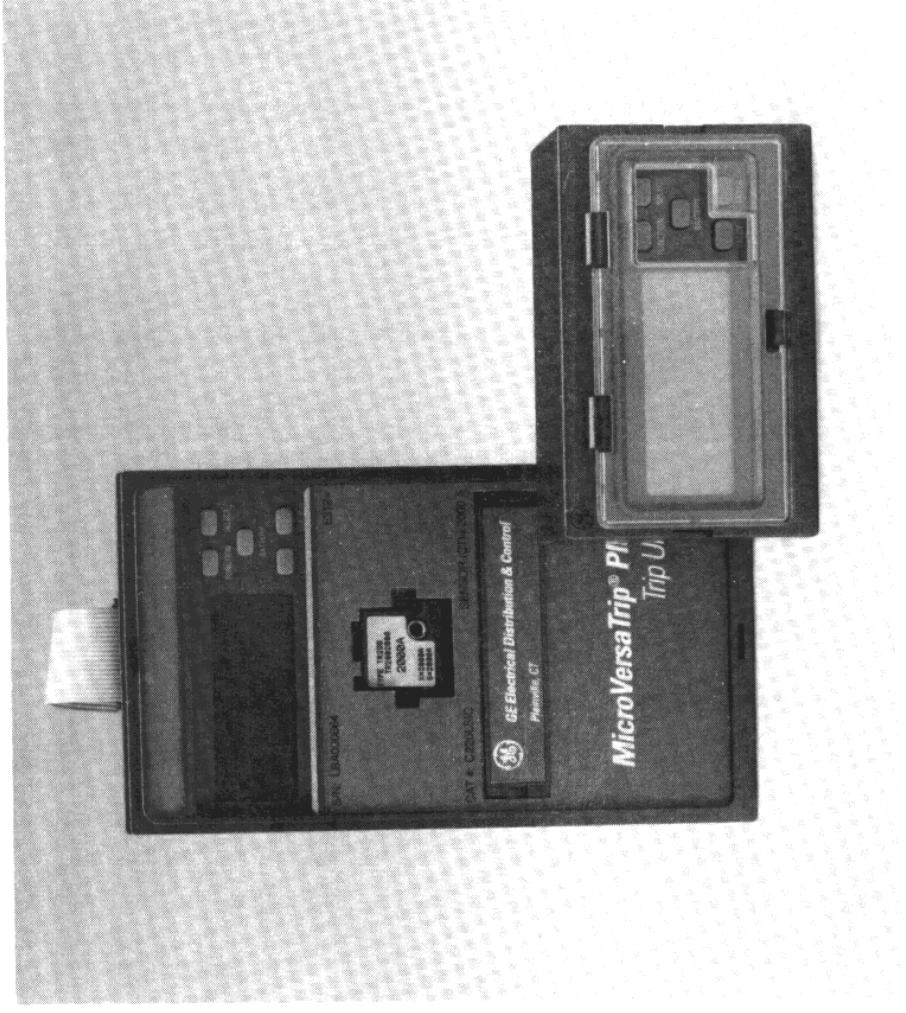


Why Use a GE Conversion Kit?

- **Easy Installation with a modular design**
- **ANSI C37.59 Verification Testing by GE**
- **Field Installable with Step by Step Instructions**
- **Local/Remote Metering Capability**
- **Full range of interchangeable rating plugs**
- **Factory direct service team**



Trip Unit Features



The new GE Conversion Kits include the enhanced MicroVersaTrip[®] Plus & PM trip units, in addition to the optional, industry leading Remote Display.

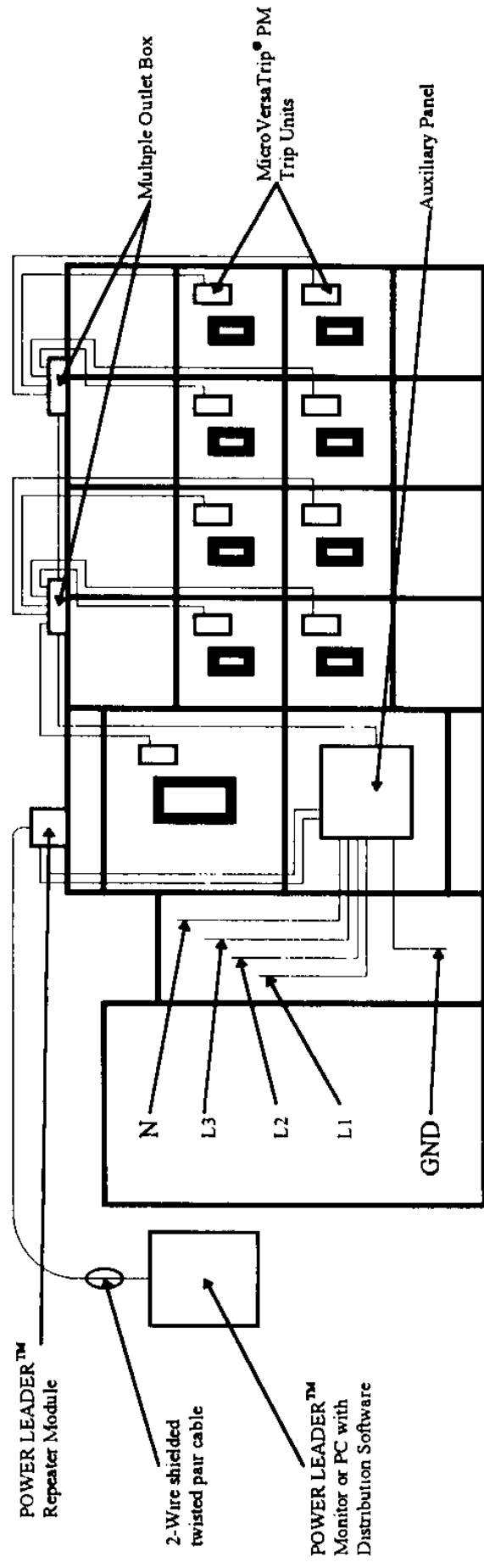


Trip Unit Options

<u>Features</u>	<u>Plus</u>	<u>Metering</u>	<u>PM</u>
Overcurrent Protection			
LT, ST, Inst, GF	X	X	X
Metering			
Current (A, kA)	X	X	X
Voltage (Ph-Ph/Ph-N)		X	X
Energy (kWh, MWh, GWh)		X	X
Real Power (kW, MW)		X	X
Total Power (kVA, MVA)		X	X
Frequency (Hz)		X	X
Demand/ Peak Demand (kW, MW)		X	X
Additional Protective Relays			
Current Unbalance			X
Voltage Unbalance			X
Undervoltage			X
Overvoltage			X
Power Reversal			X
Power Reversal Directions			X
Communications		X	X



POWER LEADER™ System



Building Block Approach To Power Management

- 1. Install Conversion Kits on each breaker**
- 2. Install an Auxiliary Panel in each switchgear line-up**
- 3. Connect the system together with standard cables and Multiple Outlet Boxes.**
- 4. Integrate the switchgear line-up with a POWER LEADER™ Monitor, Meter, Management System, Etc.**



Upgrade with GE

- **Extensive experience in the breaker business**
- **Retrofit circuit breakers with leading edge trip unit technology**
- **Full line of easy to install conversion kits**
- **Building block approach to system integration**

Let GE's experience with the largest installed switchgear base in the world provide confidence in all your retrofit programs.



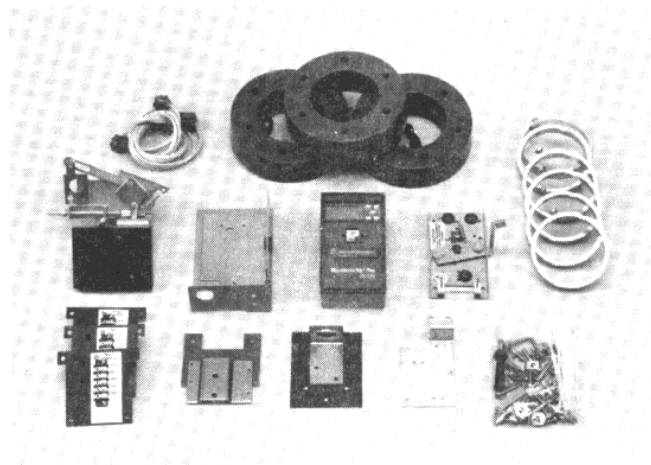
MicroVersaTrip® Plus & PM Low Voltage Power Circuit Breaker Conversion Kits

Note to the Presenter:

The following presentation lists the benefits and features of the new MicroVersaTrip® Plus & PM Conversion Kits. The kits may be used in individual applications or in a power management system. This presentation is not intended to describe all the POWER LEADER™ benefits or features. Please refer to the POWER LEADER sales training information for more specific power management presentations.



What is a conversion kit?



With a GE Conversion Kit, everything is provided to retrofit a low voltage power circuit breaker.

A conversion kit consist of the following major components:

1. A solid state microprocessor based programmable trip unit analyzes voltage and current signals, as appropriate, and is capable of changing protective settings.
2. An interchangeable rating plug allows flexibility in changing the breaker rating without racking the breaker out of its cubicle or removing the programmable trip unit.
3. An epoxy encapsulated high accuracy current transformer is applied to each phase, which transforms primary current into low level secondary current. These are typically installed on new copper load straps.
4. A flux shifter trip device provides a direct acting trip signal that automatically resets itself when the breaker opens.
5. Mounting hardware and wire harnesses are specifically designed for each breaker frame.
6. Detailed installation instructions and a programmable trip unit user's guide makes field installations possible.



Why Convert?

- **Improve system reliability**
- **Reduce maintenance & downtime costs**
- **Extend equipment life**
- **Enhance system coordination & protection**
- **Provide energy management capability**

A GE MicroVersaTrip® Plus or PM Conversion Kit will improve your system flexibility while maintaining system integrity.

Older electronic trip units are peak sensing devices which can cause over or under protection. True RMS sensing with MicroVersaTrip® Plus and PM properly measures the actual heating effect of the current.

Electro-mechanical trip devices rely on oil dashpots which are susceptible to leakage and loss of calibration. This is a dangerous situation since the breaker may not open under an abnormal condition.

Calibration of MicroVersaTrip Plus and PM trip units is no longer required. Downtime can be minimized due to the diagnostic capabilities available with MicroVersaTrip Plus and PM trip devices.

Greater accuracy and repeatability in conjunction with more flexible time current curves allow for tighter coordination and increased protection. Flexible rating selection can be obtained from MicroVersaTrip Plus and PM trip units not available with discrete electro-mechanical trip devices, which significantly reduces nuisance tripping.

The MicroVersaTrip Plus and PM trip units all have integral self-testing capabilities that constantly monitor the proper operation of the device.

New MicroVersaTrip PM trip units display metering values and have remote communication capability.

Mechanically sound circuit breakers can have their trip systems upgraded with MicroVersaTrip Plus and PM in lieu of replacing the complete breaker at a considerable cost savings.



Why Use a GE Conversion Kit?

- **Easy Installation with a modular design**
- **ANSI C37.59 Verification Testing by GE**
- **Field Installable with Step by Step Instructions**
- **Local/Remote Metering Capability**
- **Full range of interchangeable rating plugs**
- **Factory direct service team**

Pre-assembled components simplifies the installation and reduces assembly time.

MicroVersaTrip® Plus & PM conversion kits are made to order with a planned four week standard delivery cycle.

MicroVersaTrip Plus & PM conversion kits are designed and breaker tested to conform with ANSI C37.59 and allows the retrofitter to properly install and acceptance test the breaker in the field.

MicroVersaTrip Plus & PM trip units have a connection to allow attachment of a through the door remote display and entry key pad. MicroVersaTrip PM conversion kits can communicate to other POWER LEADER™ devices and host computers via a two wire twisted pair cable.

MicroVersaTrip Plus & PM conversion kits are equipped with a quick disconnect feature for the programmer to allow for easy change-out or removal for bench programming.

Breaker ampere rating can be quickly changed by changing the rating plug or long time settings without racking the breaker out of its cubicle.

GE has a team of technical expertise directly available from the factory for any application or product service needs.



Trip Unit Features



The new GE Conversion Kits include the enhanced MicroVersaTrip® Plus & PM trip units, in addition to the optional, industry leading Remote Display.

The enhanced MicroVersaTrip Plus and PM trip units are the same as the units used on all new GE type AKR low voltage power circuit breakers. They include the following features.

Programmer Features:

Interchangeable rating plug for flexibility in matching load requirements.

High definition LCD readout for metered values, trip settings, and fault trip indications.

Long life lithium battery for cold set-up and status indication.

5-key Ergonomic keypad with positive indication of set point entry.

Function key for selecting mode of display.

Select Key for choosing next item for display.

Battery key for activating battery power mode.

Enter key for storing set points.

Value key for selecting phase to display or altering set point values.

Optional Remote Display with the same LCD readout and keypad.



Trip Unit Options

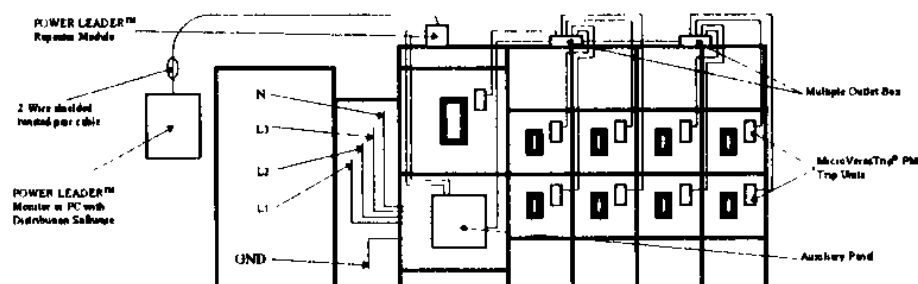
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Additional Protective Relays			
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Voltage Unbalance			X
Undervoltage			X
Overvoltage			X
Power Reversal			X
Power Reversal Directions			X
Communications		X	X

The MicroVersaTrip® Plus and PM trip units provide overcurrent protection with up to 8 trip functions. Both trip units display pickup and trip indications as well as three phase currents.

The MicroVersaTrip PM trip units can display and communicate a full range of metered values both locally and remotely. The PM Trip unit is available as metering only or with protective relay trip functions.



POWER LEADER™ System



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GE offers an integrated family of Power Management products.

The POWER LEADER™ Monitor provides a single point to monitor multiple POWER LEADER devices either near the devices or at a remote location. The monitor gathers and displays specific metered and status information from POWER LEADER Meters and MicroVersaTrip® PM trip units.

The POWER LEADER Meter allows the user to monitor, analyze and protect any electrical circuit with standard 5 amp current transformers and 120 volt potential transformers.

As your needs grow, you can add these devices to gain insight and knowledge to increase productivity and reduce cost.

The system can be installed one part at a time. However, if the MicroVersaTrip PM kits are installed without the associated Auxiliary Panel and wiring, the unit will perform as a MicroVersaTrip Plus kit. Also, one Auxiliary Panel is required for every 20 MicroVersaTrip PM trip units and for each feed bus.



Upgrade with GE

- **Extensive experience in the breaker business**
- **Retrofit circuit breakers with leading edge trip unit technology**
- **Full line of easy to install conversion kits**
- **Building block approach to system integration**

Let GE's experience with the largest installed switchgear base in the world provide confidence in all your retrofit programs.

GE has decades of circuit breaker design and development experience and continues to pioneer leading edge technology in circuit breakers and their trip systems.

GE applies the same trip systems in the MicroVersaTrip® Plus and PM conversion kits developed for its newest breakers.

GE currently offers MicroVersaTrip Plus and PM conversion kits for older style GE circuit breakers and I-T-E circuit breakers.

MicroVersaTrip Plus and PM conversion kits will soon be available for use in other manufacturers breakers such as Westinghouse, Federal Pacific, and Allis Chalmers.