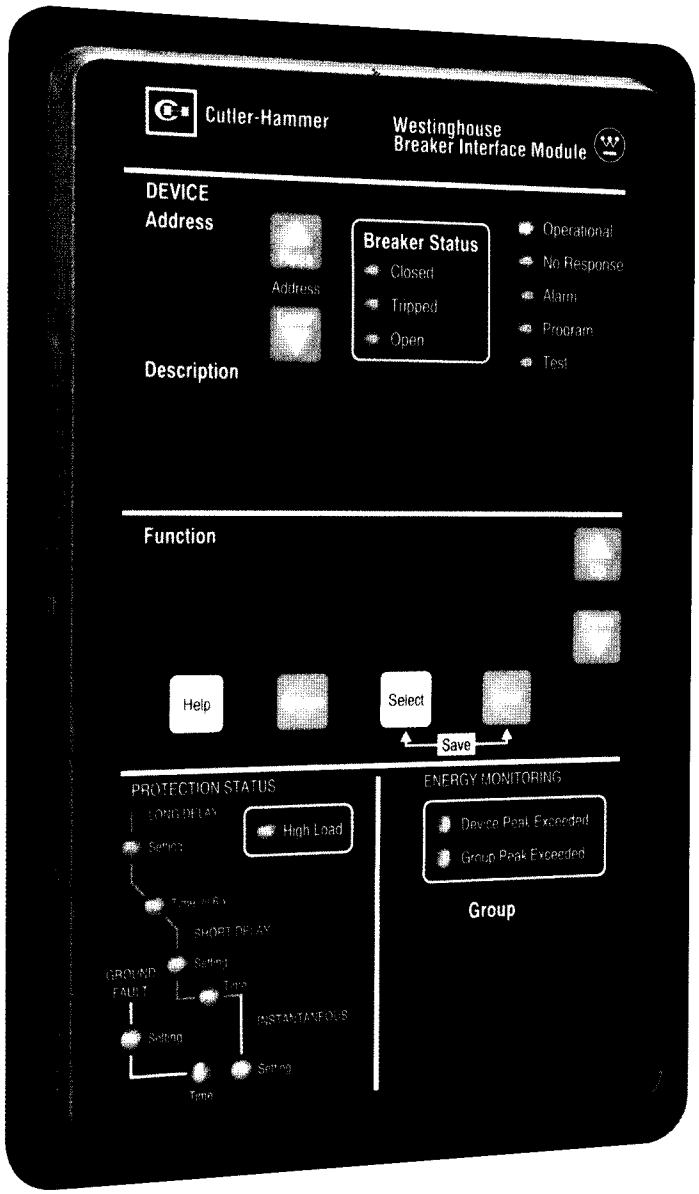
Instructions for Installation, Operation and Maintenance of Breaker Interface Module

(Compatible with Digitrip OPTIM and RMS 810/910 Trip Units and IQ Energy Sentinels)

PROTECTION AND COORDINATION

POWER QUALITY

ENERGY MONITORING



COMMUNICATIONS SYSTEMS

WARNING

IMPROPERLY INSTALLING OR MAINTAINING THESE PRODUCTS CAN RESULT IN DEATH, SERIOUS PERSONAL INJURY, OR PROPERTY DAMAGE.

READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE ATTEMPTING ANY UNPACKING, ASSEMBLY, OPERATION OR MAINTENANCE OF THE CIRCUIT BREAKERS.

INSTALLATION OR MAINTENANCE SHOULD BE ATTEMPTED ONLY BY QUALIFIED PERSONNEL. THIS INSTRUCTION BOOK SHOULD NOT BE CONSIDERED ALL INCLUSIVE REGARDING INSTALLATION OR MAINTENANCE PROCEDURES. IF FURTHER INFORMATION IS REQUIRED, YOU SHOULD CONTACT CUTLER-HAMMER.

WARNING

THE CIRCUIT BREAKERS DESCRIBED IN THIS BOOK ARE DESIGNED AND TESTED TO OPERATE WITHIN THEIR NAMEPLATE RATINGS. OPERATION OUTSIDE OF THESE RATINGS MAY CAUSE THE EQUIPMENT TO FAIL, RESULTING IN DEATH, BODILY INJURY AND PROPERTY DAMAGE.

ALL SAFETY CODES, SAFETY STANDARDS AND/OR REGULATIONS AS THEY MAY BE APPLIED TO THIS TYPE OF EQUIPMENT MUST BE STRICTLY ADHERED TO.

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Cutler-Hammer

Power Distribution Components Division

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Pittsburgh, PA 15220

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SECTION 1: INTRODUCTION

1-1 COMMON TERMS

Several commonly used terms or phrases are used throughout this manual. They are defined here to eliminate any confusion that might arise when reading the text.

IMPACC (Integrated Monitoring, Protection and Control Communications) – A family of communicating electrical power distribution protective devices, meters, motor control devices, communications networks and protocols and software packages to provide power distribution monitoring and control.

INCOM (Industrial Communications) – A noise immune communications system designed specifically for power distribution monitoring and control applications.

PONI (Product Operated Network Interface) – A plug-in communications module that enables network communications.

1-2 PRELIMINARY COMMENTS AND SAFETY PRECAUTIONS

This instructional manual is intended to present specific descriptive, operational, installation and maintenance information associated with the Breaker Interface Module only. The Breaker Interface Module is compatible with Digitrip OPTIM Trip Units, Digitrip RMS 810/910 Trip Units and IQ Energy Sentinels. For a general overview of the entire Digitrip OPTIM Trip Unit System and certain specific application possibilities, refer to Instruction Book 29C890 entitled "Instructional Overview for Use Of the Digitrip OPTIM Trip Unit System."

Detailed instructional material relative to the installation, use and maintenance of specific devices is included under separate cover by a manual dedicated to each device. A series of four manuals brings together the wide array of capabilities offered by the most advanced programmable trip unit system - Digitrip OPTIM. Refer to Appendix A for all instruction material references.

Please read and understand this manual and all other relevant manuals before proceeding with the installation and operation of any device included in the trip unit system. Pay particular attention to all WARNINGS and CAUTIONS. They are intended to help insure personnel safety and equipment protection. Refer to the WARNING and CAUTION in Paragraph 1-2.1 before proceeding to any other section in this manual or any other manual. If further information is required by the purchaser regarding a particular installation, application or maintenance activity, a Cutler-Hammer representative should be contacted.

1-2.1 SAFETY PRECAUTIONS

All safety codes, safety standards and/or regulations must be strictly observed in the installation, operation and maintenance of any device in this system.

WARNING

THE WARNINGS AND CAUTIONS INCLUDED AS PART OF THE PROCEDURAL STEPS IN THIS DOCUMENT ARE FOR PERSONNEL SAFETY AND PROTECTION OF EQUIPMENT FROM DAMAGE. AN EXAMPLE OF A TYPICAL WARNING LABEL HEADING IS SHOWN ABOVE IN REVERSE TYPE TO FAMILIARIZE PERSONNEL WITH THE STYLE OF PRESENTATION. THIS WILL HELP TO INSURE THAT PERSONNEL ARE ALERT TO WARNINGS, WHICH MAY APPEAR THROUGHOUT THE DOCUMENT. IN ADDITION, CAUTIONS ARE ALL UPPER CASE AND BOLDFACE AS SHOWN BELOW.

CAUTION

COMPLETELY READ AND UNDERSTAND THE MATERIAL PRESENTED IN THIS DOCUMENT BEFORE ATTEMPTING INSTALLATION, OPERATION OR APPLICATION OF THE EQUIPMENT. IN ADDITION, ONLY QUALIFIED PERSONS SHOULD BE PERMITTED TO PERFORM ANY WORK ASSOCIATED WITH THE EQUIPMENT. ANY WIRING INSTRUCTIONS PRESENTED IN THIS DOCUMENT MUST BE FOLLOWED PRECISELY. FAILURE TO DO SO COULD CAUSE PERMANENT EQUIPMENT DAMAGE.

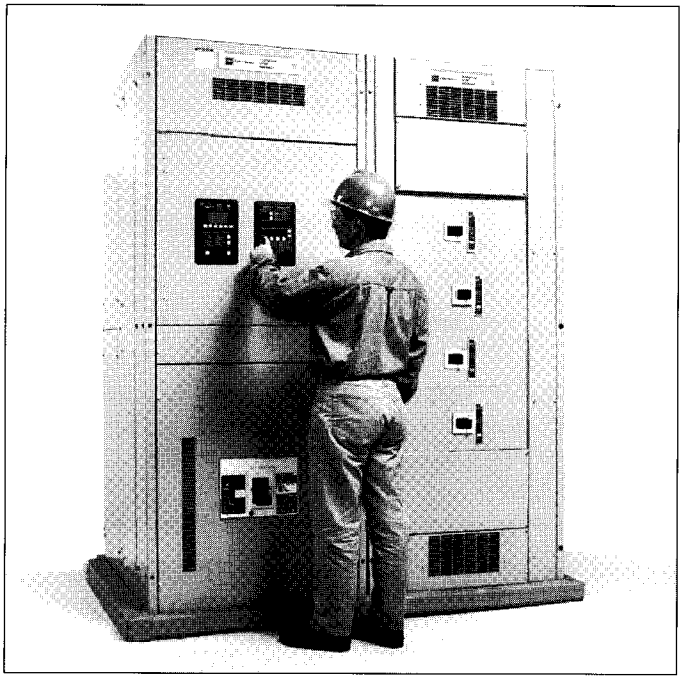

Figure 1-1 Breaker Interface Module in Service

1-3 PRODUCT OVERVIEW

The Breaker Interface Module is a comprehensive, multi-function, microprocessor-based operator interface that can be mounted locally at the device or at a remote location (Figure **1-1**). In conjunction with the OPTIM Trip Unit it accomplishes the functions of individually mounted devices, such as wired ammeters, ammeter switches, watthour meters, breaker indicating lights, alarm contacts, test equipment, and programming devices. The Breaker Interface Module can monitor up to 50 devices which includes circuit breakers equipped with Digitrip OPTIM or Digitrip RMS 810/910 Trip Units, IQ Energy Sentinels and Universal IQ Energy Sentinels. The number of devices being monitored, however, cannot exceed 50 total. Like the OPTIMizer Hand Held Programmer (I.B. 29C892), the Breaker Interface Module can be used to program and test OPTIM Trip Units.

The Breaker Interface Module will communicate to multiple trip units over a sub-network, as well as a personal computer on a main network. When communicating with trip units and energy devices, the Breaker Interface Module acts as the master device. When communications is from a computer through the Breaker Interface Module via a PONI, the computer assumes the role of the master device (Figure **1-2**).

The Breaker Interface Module provides the operator with all the feature capabilities of the Hand Held Programmer except for the following:

- Setting device address
- Setting BAUD rate

Notice: *A direct breaker connection via an OPTIMizer Hand Held Programmer will override an INCOM connection. This will cause a no response alarm on the Breaker Interface Module and a master network.*

1-4 FEATURES AND FUNCTIONS

An operator can use the Breaker Interface Module to:

- **Configure OPTIM Trip Unit**
  - Select breaker addresses
  - Select frequency (50/60 Hz)
  - Set security passwords
  - Change time-current setpoints
  - Select protection options
  - Select alarm levels
- **Display Information**
  - Breaker description/status
  - Time-current setpoints
  - Metered values
  - Trip event information
- **Test OPTIM Trip Unit Performance**
  - Phase and ground
  - Trip or no trip
- **Energy Monitoring**
  - Set addresses for group energy monitoring
  - Group energy readings
  - Configure alarms on demand exceeded
  - Indicate alarms via output contacts
- **Local and Remote Indication**
  - Remote indication/alarming
  - Breaker status indication
- **IMPACC Communications with**
  - Digitrip OPTIM Trip Units
  - Digitrip RMS 810/910 Trip Units
  - IQ Energy Sentinels and Universal IQ Energy Sentinels
  - Up to 50 devices total

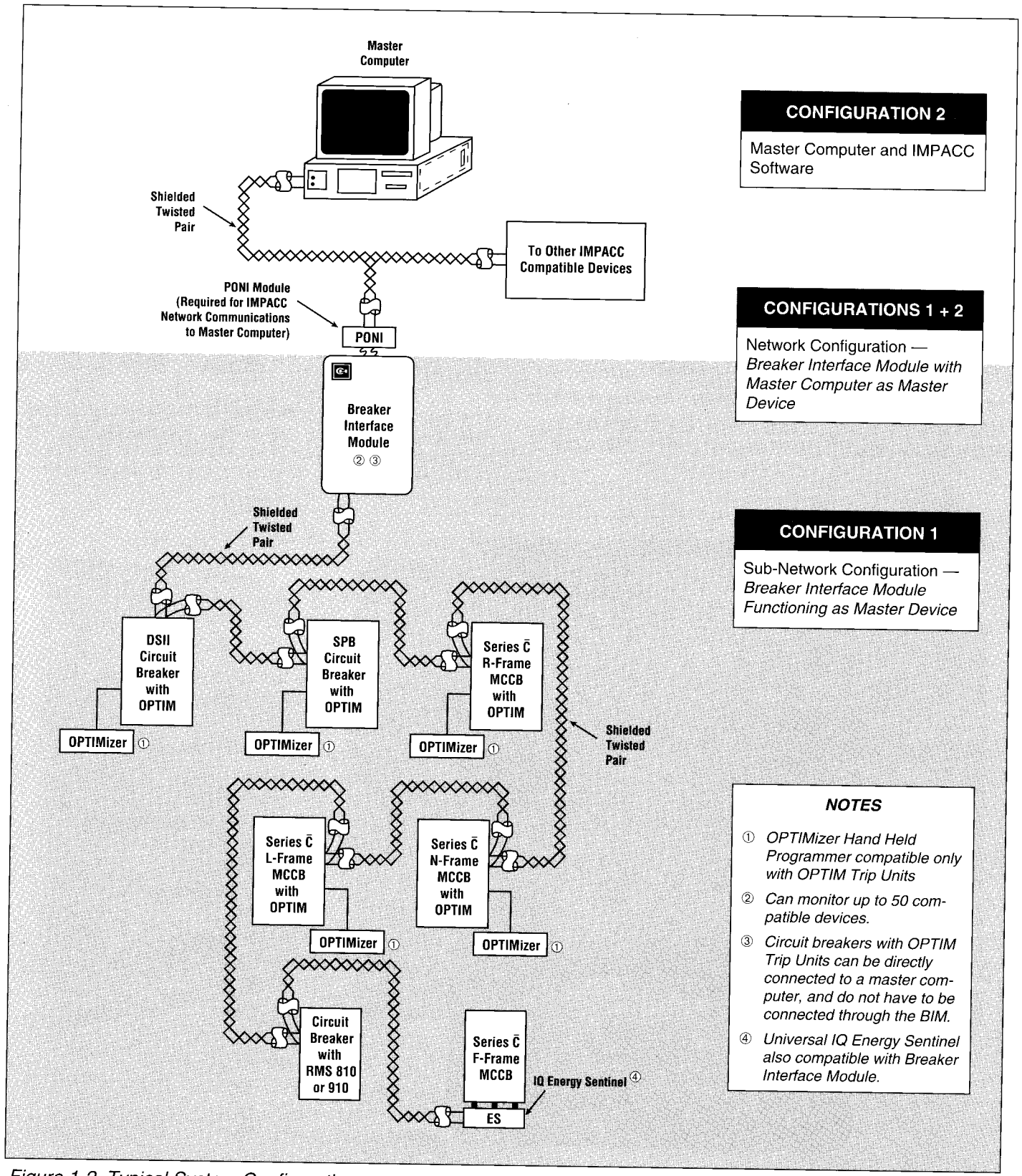

Figure 1-2 Typical System Configurations