SECTION 2: HARDWARE DESCRIPTION

2-1 GENERAL

The purpose of this section is to familiarize the reader with the Breaker Interface Module hardware, nomenclature, and list the device's specifications. The information presented is divided into the following four parts:

- Operator Panel
- Rear Access Area
- External Hardware
- Specification Summary

CAUTION

THIS IS A SOPHISTICATED PIECE OF ELECTRICAL EQUIPMENT. AS SUCH, IT SHOULD BE HANDLED CAREFULLY AT ALL TIMES TO AVOID POSSIBLE DEVICE DAMAGE.

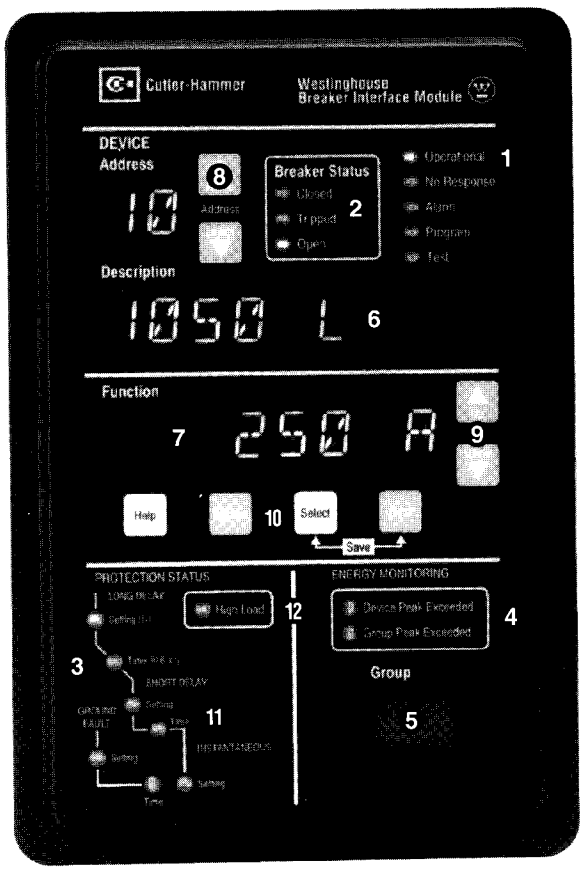
2-2 OPERATOR PANEL

The operator panel, normally accessible from the outside of a panel or door, provides a means for:

- Being alerted to specific conditions
- Receiving functional help
- Programming
- Parameter Monitoring/Selection

LEDs, Display Windows, Pushbuttons and a LED type Mimic Time-Current Curve make up the front accessible operator panel (Figure **2-1**). Each item is discussed in detail in Section 3.

The eighteen LEDs on the operator panel will blink or be lit continuously, depending on their specific function. All



1. Operational Condition LEDs
2. Circuit Breaker Status LEDs
3. Protection Status LEDs
4. Energy Monitoring LEDs
5. Identification Display
6. Description Display
7. Function Display
8. Raise/Lower Pushbuttons
9. Up/Down Pushbuttons
10. Help/Escape/Select/Next Pushbuttons
11. Mimic Time-Current Curve
12. High Load LED

Figure 2-1 Breaker Interface Module Operator Panel

the LEDs when lit are red, except for the ***Operational*** LED which is green. LEDs are used to indicate a number of functions, operations and/or warnings.

Four LED type display windows are used to display an array of metered parameters, setpoints, messages and addresses in a number of different formats. The information is presented in the form of display screens for a variety of categories.

The operator panel contains eight membrane pushbuttons. Pushbuttons accomplish their function when pressed and then released. Certain pushbuttons will, however, continue to scroll if they are pressed and not released.

2-3 REAR ACCESS AREA

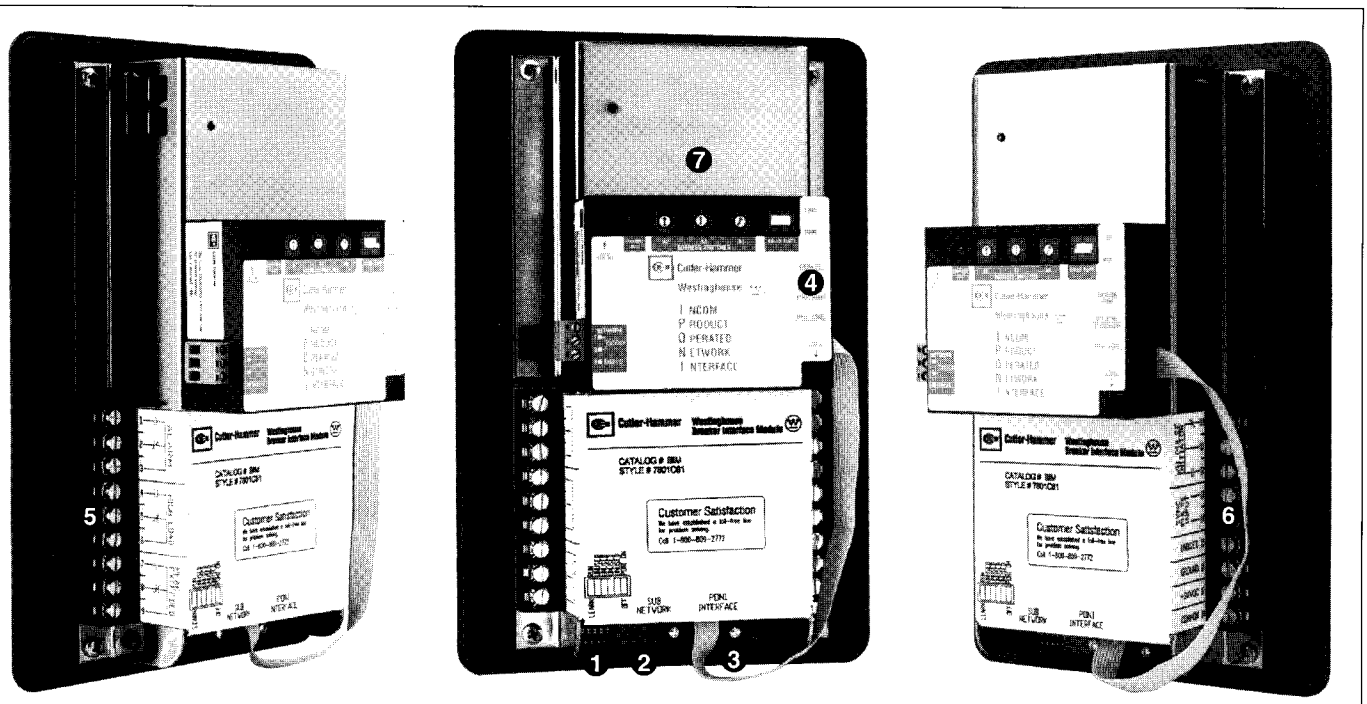
The rear access area of the Breaker Interface Module is normally accessible from the rear of an open panel door (Figure **2-2**). All wiring connections and DIP switch settings are made at the rear of the chassis. For the sake of uniform identification, the frame of reference when discussing the rear access area is facing the back of the Breaker Interface Module with the panel door open. The terminal block providing alarm connections, for example, is located on the left side of the chassis.

2-3.1 DIP SWITCHES

A set of six DIP switches numbered 1 through 6 is located in the bottom left portion of the rear access area (Figure **2-3**). Refer to Table **5.1** for exact switch settings. Their basic functions are as follows:

Switch 1: This switch puts the Breaker Interface Module in the **Learn** mode or the **Run** mode. DIP switch 1 is only in the **Learn** mode (down position) for the following instances:

- When power is applied to the Breaker Interface Module for the first time.
- When the Update feature in the System display menu is used to add new network devices.



❶ Dip Switches
❷ 3-Pin Sub-Network Connector
❸ PONI Interface Connector
❹ Communication Module (PONI)
❺ Terminals 1-9
❻ Terminals 10-18
❼ Mouniting Position for BIM Mounted Power Supply

Figure 2-2 Breaker Interface Module (Rear View)

In the down position, the Breaker Interface Module will search through the network for connected devices, learn their addresses/ descriptions, and store the information in non-volatile memory. Once the learning or updating processes have been completed, DIP switch 1 should be moved to the "Run" (up) position.

Switches 2, 3, 4 and 5: These switches are not used. They are intended for possible future enhancements and must be in the down position.

CAUTION

ONLY CONNECT OR DISCONNECT A COMMUNICATIONS MODULE (PONI) WITH DIP SWITCH 6 IN THE "OFF" (DOWN) POSITION. FAILURE TO DO SO CAN CAUSE PERMANENT DAMAGE TO THE PONI.

Switch 6: This switch is referred to as a PONI power switch. The switch is in the "On" (up) position only when a communication module (PONI) is being used for network communications via IMPACC. It is in the "Off" (down) position when the Breaker Interface Module is communicating on a sub-network only, or when a PONI is being connected or disconnected.

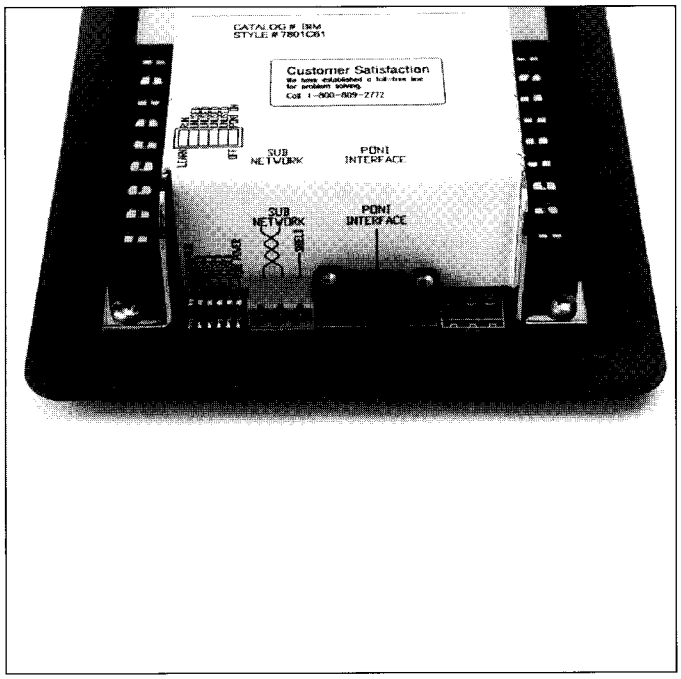
2-3.2 SUB-NETWORK CONNECTOR

A three pin, male connector, located next to the DIP switches, provides for a shielded twisted pair connection permitting the Breaker Interface Module to communicate with up to 50 total trip units and energy monitoring devices (Figure **2-3**). The Breaker Interface Module assumes the role of the network master on a sub-network (Figure **1-2**).

2-3.3 PONI INTERFACE CONNECTOR (NETWORK)

A port, located next to the sub-network connector, is provided that will accept the D-sub male connector of an optional and externally mounted communication module (PONI) (Figures **1-3, 2-3** and **2-4**). The PONI provides for a twisted pair connection permitting the Breaker Interface Module to communicate with a master computer (Paragraph 2-5).

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.*



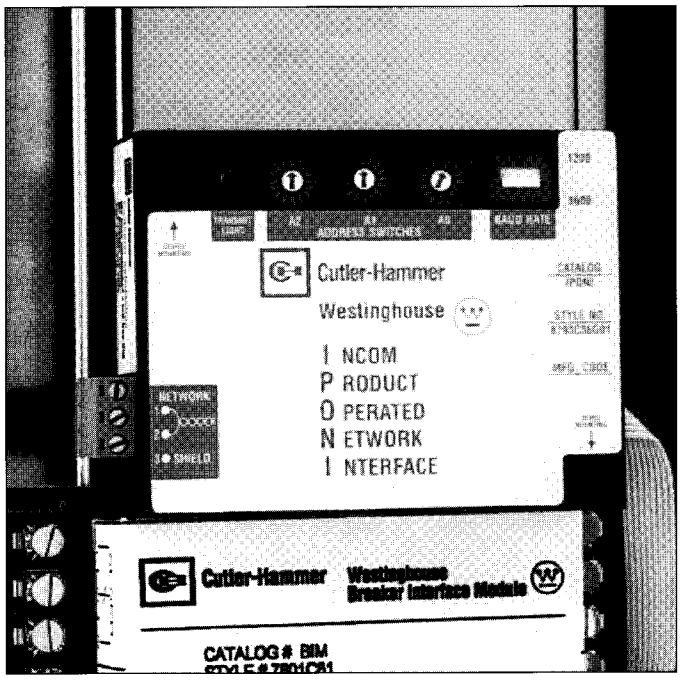


Figure 2-4 Communications Module (PONI) – Shown Mounted

2-3.4 LEFT REAR CHASSIS

A nine point terminal block, numbered 1 through 9, is mounted on the left rear chassis (Figures **2-5** and **5-5**). Three sets of dry Form C output contacts are provided for alarm connections.

- Contacts 1, 2 and 3 — Remote Alarm
- Contacts 4, 5 and 6 — High Load Alarm
- Contacts 7, 8 and 9 — Peak Demand Exceed Alarm

2-3.5 RIGHT REAR CHASSIS

A nine point terminal block, numbered 10 through 18 is mounted on the right rear chassis (Figures **2-6** and **5-5**).

- Contacts 10, 11 and 12 — Watt-hour Pulse Initiator Output
- Contacts 13 and 14 — Sync Pulse Input
- Contact 15 — Not Used
- Contacts 16, 17 and 18 — 30 Vdc Power/Ground

2-4 POWER SUPPLIES

Power for the Breaker Interface Module is supplied by a separate external source mounted in the switchboard or a power source mounted on the rear of the Breaker Interface Module at the factory. Refer to Table **2.1** for additional power supply information and style/catalog numbers for the two Breaker Interface Module models.

2-4.1 SWITCHBOARD MOUNTED POWER SUPPLY

A switchboard mounted power supply is appropriate for Series C L and N-Frame circuit breaker applications. Mount the selected power supply in the switchboard in accordance with the manufacturer's instructions. It should be a compatible 24-30 Vdc, 400 ma supply with a plus or minus 5% tolerance. The output of the separately mounted power supplies specified in Table **2.1** are capable of supplying power to any combination of 16 L-Frame and/or N-Frame circuit breakers and one Breaker Interface Module.

2-4.2 BREAKER INTERFACE MODULE MOUNTED POWER SUPPLY

A Breaker Interface Module mounted power supply is appropriate for Series C R-Frame, SPB Pow-R and DSII/DSLII circuit breaker applications. Circuit breakers of this type will supply power to the trip unit, and do not require an external power supply for this purpose. The

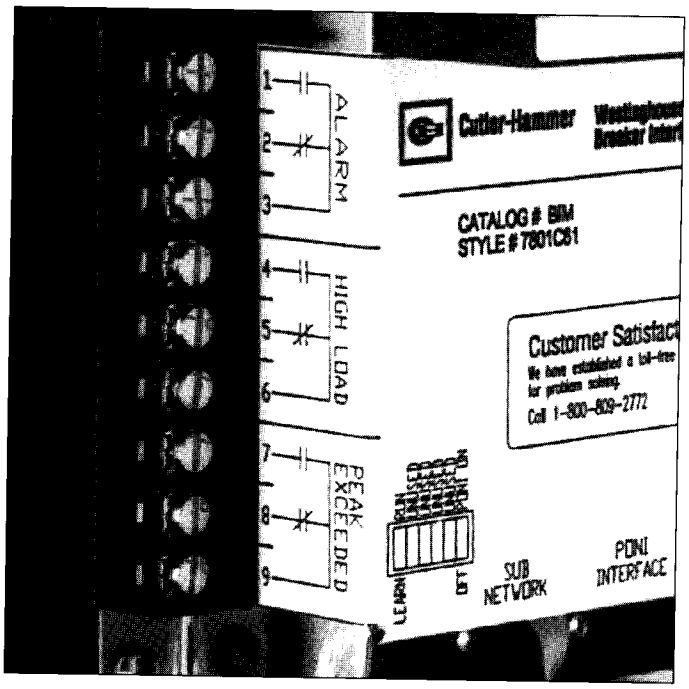


Figure 2-5 Breaker Interface Module Terminal Block (Contacts 1-9)

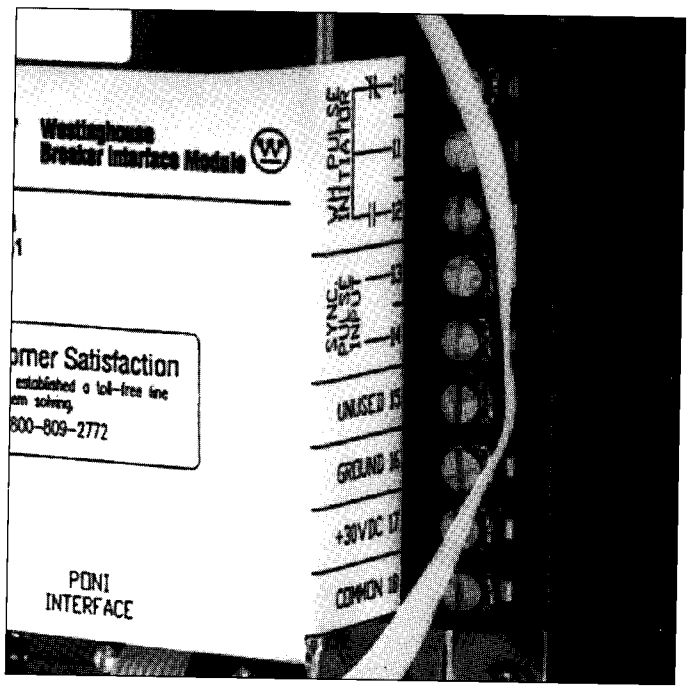


Figure 2-6 Breaker Interface Module Terminal Block (Contacts 10-18)

output of the power supply specified in Table **2.1** is capable of supplying power to one Breaker Interface Module only. The Breaker Interface Module mounted power supply is supplied from the factory already mounted on the rear of the Breaker Interface Module.

2-5 COMMUNICATION MODULE (PONI)

A PONI is required for communications between a Breaker Interface Module and a remote computer. Use of the PONI permits network communications with a remote computer functioning as the network master. The INCOM PONI, RS-232 PONI and PONI Modem can all be used with the Breaker Interface Module. A PONI is not required for connection of a Breaker Interface Module on a sub-network.

Refer to the instruction material supplied with the PONI for details. Refer to Section 4 for additional information concerning Breaker Interface Module communications.

2-6 SPECIFICATION SUMMARY

Refer to Table **2.1** for product specification details.

Models/Control Power

- BIM with Switchboard Mounted Power Supply — Style No. 7801C61G01, Catalog No. BIM
  - BIM Power Consumption — 12 VA
- Switchboard Mounted Power Supplies
  - (1) International Power Sources, 200 Butterfield Drive, Ashland, MA 01721, (508) 881-7434, PU200-16, 200W, 30 Vdc, Power Supply, PU110-16, 110W, 30 Vdc, Power Supply
  - (2) Farnell Advanced Power, 32111 Aurora Road, Solon, OH 44139, (216) 349-0755, NS075030/M 75W, 30 Vdc, Power Supply, NS055030/M 55W, 30 Vdc, Power Supply
- BIM with Power ① Supply Mounted — Style 7801C61G02, Catalog No. BIMPS
  - BIM plus Supply Power Consumption — 15 VA
  - Input Voltage — 100-240 Vac
  - Frequency — 50-60 Hz

Relay Output Contacts

- 10A Continuous @ 120/250 Vac Resistive Load
- 10A Continuous @ 30 Vdc Resistive Load
- 1/3 HP Continuous @ 250 Vac Inductive Load

Sync Pulse Inputs

- Dry Contact
- Pulse Width >5ms

Environment Conditions

- Operating Temperature — 0° to 70°C
- Storage Temperature — -30° to 85°C
- Operating Humidity (non-condensing) — 0 to 95% Relative Humidity

Sub-network Communications

- INCOM/IMPACC Compatible
- Sub-network Address Range 1 to 32 (hexadecimal)
- 1200 or 9600 Baud

Master Network Communications

- INCOM/IMPACC Compatible via field installed communications module (INCOM PONI, RS232 PONI, Modem PONI)
- 1200 or 9600 Baud

① BIM mounted power supply is supplied from the factory already mounted on the BIM.