

## SECTION 3: OPERATOR PANEL

### 3-1 GENERAL

The operator panel, which is normally accessible from the outside of a panel or door, provides a means for being alerted to specific conditions, receiving functional help, programming, and parameter monitoring/selection (Figure 2-1). For the purpose of familiarization, the panel is divided into four sub-sections and discussed individually:

- LEDs
- Display Windows
- Pushbuttons
- Mimic Time-Current Curve

**NOTICE:**  $I_n$  and  $I_r$  as used in any OPTIM Trip Unit System document are defined as follows:

- $I_n$  = Rating Plug Value
- $I_r$  = Long Delay Setting

### 3-2 LEDES

Eighteen LEDs are used to indicate a wide array of functions, operations and/or events. LEDs at the top of the Breaker Interface Module give a visual indication of

the device's present operational condition and the status of the circuit breaker being communicated with at any given time (Figure 3-1). LEDs in the lower half of the device are used to provide protection status and energy monitoring information (Figure 3-2).

### 3-2.1 OPERATIONAL CONDITION LEDES

#### Operational LED

This LED blinks green when power is applied to the Breaker Interface Module and the device is functioning properly. If this LED is not on or is lit continuously, a problem is indicated. Refer to the Troubleshooting Guide (Table 6.1) for additional information.

#### No Response LED

This LED can be in one of the three following states:

- Not lit if all identified devices on the system are communicating properly
- Lit red if the device identified in the display is not communicating
- Blinks red if the device identified in the display is communicating properly, but another identified system device is not communicating

Identification of the device or devices not responding is provided through the alarm menu.

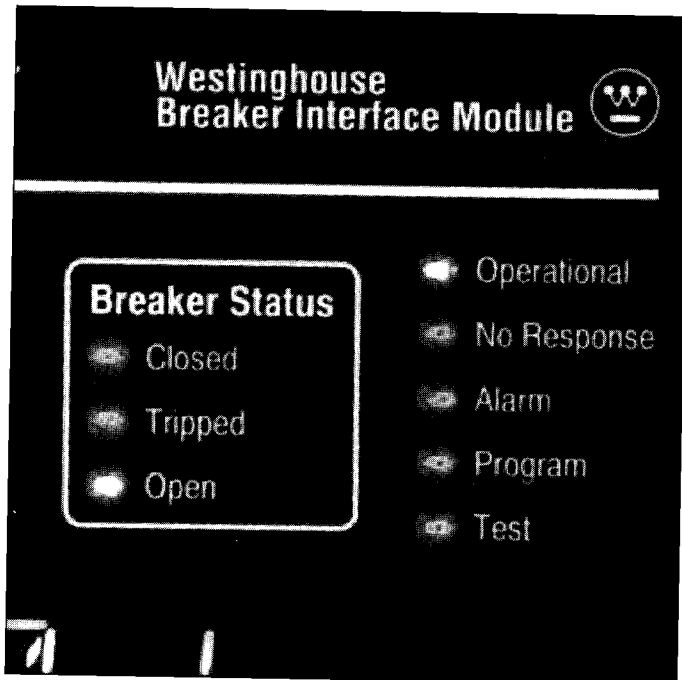


Figure 3-1 Operational and Circuit Breaker Status LEDs

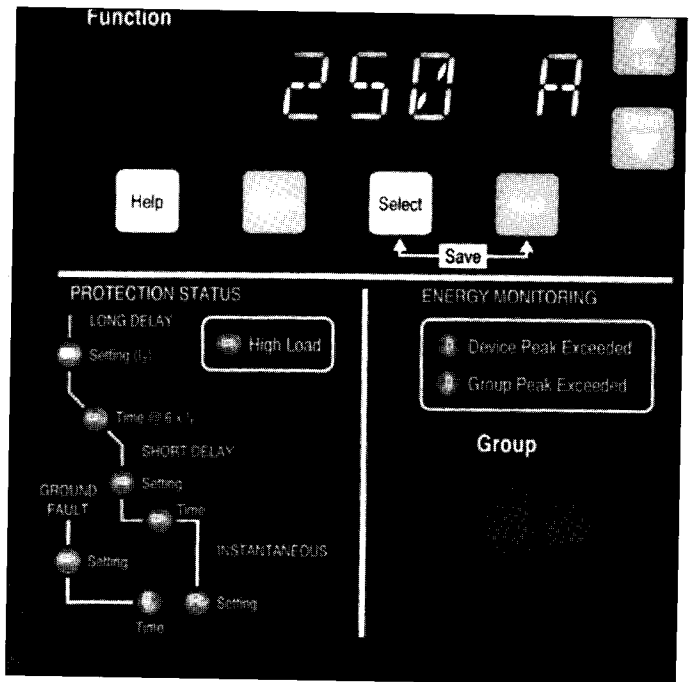


Figure 3-2 Protection Status and Energy Monitoring LEDs

During the initial power application and with DIP switch 1 in the “Learn Position” (Table 5.1 and Figure 5-5), the Breaker Interface Module is able to query the entire system, learn the address and description of all the devices on the system, and store the information in memory.

#### **Alarm LED**

This LED is lit red to indicate that an alarm has occurred with respect to a device or devices known by the Breaker Interface Module to be on the system. Identification of the device or devices initiating the alarm is provided through the **Alarms** menu. The relay is energized when the LED is lit. If an alarm has not occurred, the LED is not lit.

#### **Program LED**

This LED is lit red to indicate that the **Program** mode has been selected for the device identified in the **Description Display**. It continues to be lit until the **Program** mode is exited.

#### **Test LED**

This LED is lit red while a trip or no trip test is being performed. It indicates that the **Test** mode has been selected for the device identified in the **Description Display**.

### **3-2.2 CIRCUIT BREAKER STATUS LEADS**

#### **Closed LED**

This LED is lit red when the circuit breaker identified in the **Description Display** is closed.

#### **Tripped LED**

This LED is lit red when the circuit breaker identified in the **Description Display** is automatically tripped as a result of an overcurrent condition.

#### **Open LED**

This LED is lit red when the circuit breaker identified in the **Description Display** is opened as a result of:

- Manual operation
- Electrical operator
- Shunt trip or undervoltage release
- Communications command

#### **High Load LED**

This LED can serve as an advance warning of a possible trip condition. It is lit red when a selected level of load current for the circuit breaker identified in the **Description Display** is reached or exceeded. The selected level of load current is programmable from 50 to 100 percent of the long delay setting. It operates with an intentional delay of 40 seconds to ride through momentary condi-

tions to avoid nuisance alarms. Whenever the load current drops below the programmed level, the LED turns off. The LED blinks red when viewing or programming the high load setting for the identified circuit breaker.

### **3-2.3 PROTECTION STATUS LEADS**

#### **Long Delay Setting LED**

This LED is lit red if the circuit breaker identified in the **Description Display** trips on long delay. If the circuit breaker trips, the LED will remain lit until the trip unit is locally or remotely reset. The LED blinks red when viewing or programming the long delay setting, or when a long delay pickup occurs for the identified circuit breaker.

#### **Long Delay Time LED**

This LED blinks red when viewing or programming the long delay time setting, action or slope for the identified circuit breaker.

#### **Short Delay Setting LED**

This LED is lit red if the circuit breaker identified in the **Description Display** trips on short delay. If the circuit breaker trips, the LED remains lit until the trip unit is locally or remotely reset. The LED blinks red when viewing or programming the short delay setting for the identified circuit breaker.

#### **Short Delay Time LED**

This LED blinks red when viewing or programming the short delay time setting, action or slope for the identified circuit breaker.

#### **Instantaneous Setting LED**

This LED is lit red if the circuit breaker identified in the **Description Display** trips on instantaneous. If the circuit breaker trips, the LED remains lit until the trip unit is locally or remotely reset. The LED blinks red when viewing or programming the instantaneous setting or action for the identified circuit breaker.

#### **Ground Fault Setting LED**

This LED is lit red if the circuit breaker identified in the **Description Display** trips on a ground fault. If the circuit breaker trips, the LED will remain lit until the trip unit is locally or remotely reset. The LED blinks red when viewing or programming the ground fault setting for the identified circuit breaker. It is lit red during a ground alarm.

#### **Ground Fault Time LED**

This LED is lit continuous red if the circuit breaker identified in the **Description Display** trips on a ground fault. If the circuit breaker trips, the LED remains lit until the



Figure 3-3 Device Address Display

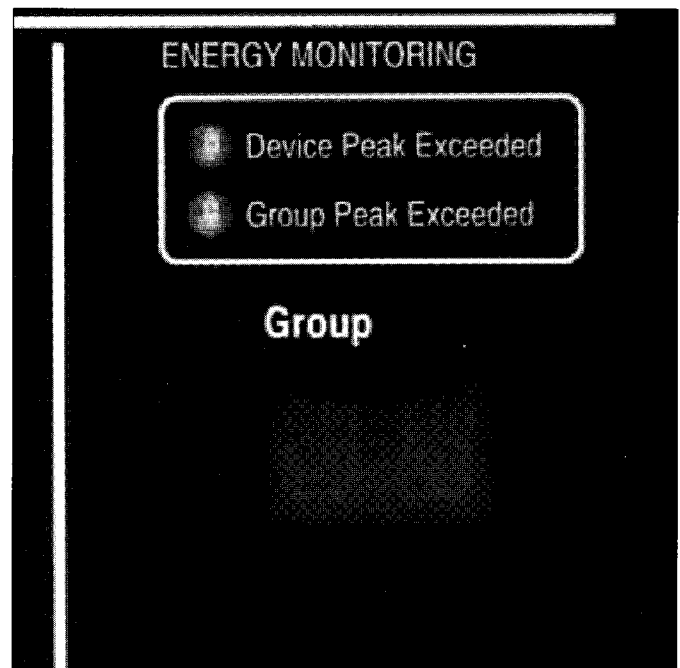


Figure 3-4 Group Display

trip unit is locally or remotely reset. The LED blinks red when viewing or programming the ground fault time setting, action or slope for the identified circuit breaker.

### 3-2.4 ENERGY MONITORING LEDS

#### **Device Peak Exceeded LED**

This LED is lit red if a programmed level of peak demand energy is exceeded by the device identified in the **Description Display**. The LED blinks red when viewing or programming the peak demand energy level for the identified device.

#### **Group Peak Exceeded LED**

This LED is lit red if a programmed level of peak demand energy is exceeded by a specific group of devices identified in the **Group Display**. The LED blinks red when viewing or programming the peak demand energy level for the identified group.

### 3-3 DISPLAY WINDOWS

Four different LED type displays provide a comprehensive array of data, setpoint information, messages and

device identifications. Displays are one of three different types:

- Identification Display
- Description Display
- Function Display

#### 3-3.1 IDENTIFICATION DISPLAY

##### **Device Address Display**

This two character display, located in the upper left portion of the Operator Panel, indicates an assigned address in a HEXADECIMAL format for a particular device (Figure 3-3). It is a device unique address with choices of 0 through 9 and A through F used to distinguish one device from another on a network.

##### **Group Display**

This two character display, located in the lower right portion of the Operator Panel, indicates an assigned identification address for a group of monitored and individually addressed devices (Figure 3-4). It identifies the group for which cumulative data is being displayed. When a group identification is displayed, the **Device Address Display** is blank and vice versa.

### 3-3.2 DESCRIPTION DISPLAY

This eight character display, located just above the **Function Display**, describes the device that is associated with the address simultaneously displayed in the **Device Address Display** (Figure 3-5). During the initial learning process performed by the Breaker Interface Module, descriptions are automatically assigned to devices. The user can, however, establish new descriptions that are more relevant to a particular installation. This is accomplished through the use of the "Set Description" feature of the **System** display menu.

### 3-3.3 FUNCTION DISPLAY

This eight character display, located just below the **Description Display**, displays all the menu options, help information and messages (Figure 3-5). Nine general menu option screens can be presented via the **Function Display** (Figure 3-6). Refer to Section 4 for specific details associated with each menu option.

### 3-4 PUSHBUTTONS

The operator panel contains eight blue or white membrane pushbuttons. All pushbuttons accomplish their function when pressed and then released. In addition,

the **Raise**, **Lower**, **Up** and **Down** pushbuttons will continue to scroll if they are pressed and not released. Several operations, such as saving new information or deleting unwanted stored information, requires the simultaneous use of two different pushbuttons and is specifically addressed in this section.

### 3-4.1 RAISE AND LOWER PUSHBUTTONS

The **Raise** and **Lower** pushbuttons, located next to the **Device Address Display**, are used primarily to step up or down respectively through the assigned addresses of connected devices (Figure 3-7). The addresses will scroll continuously through the addresses if either pushbutton is held depressed. In addition, the two pushbuttons perform similar functions on "Group" addresses displayed in the **Group Display**.

The **Raise** and **Lower** pushbuttons are also used to delete a stored alarm event displayed in the **Function Display** by pressing and releasing both pushbuttons simultaneously.

### 3-4.2 UP AND DOWN PUSHBUTTONS

The **Up** and **Down** pushbuttons, located next to the **Function Display**, are used to step up or down respec-



Figure 3-5 Description and Function Displays

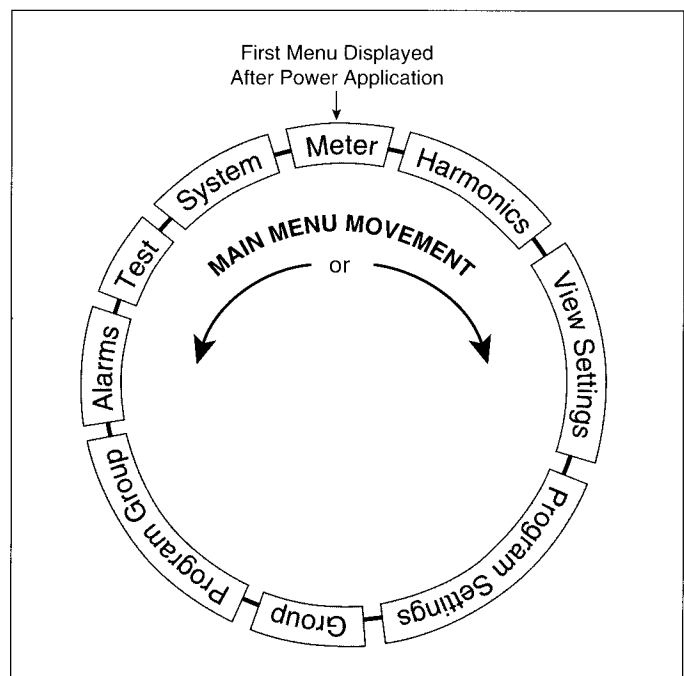


Figure 3-6 Main Menu Option Screens

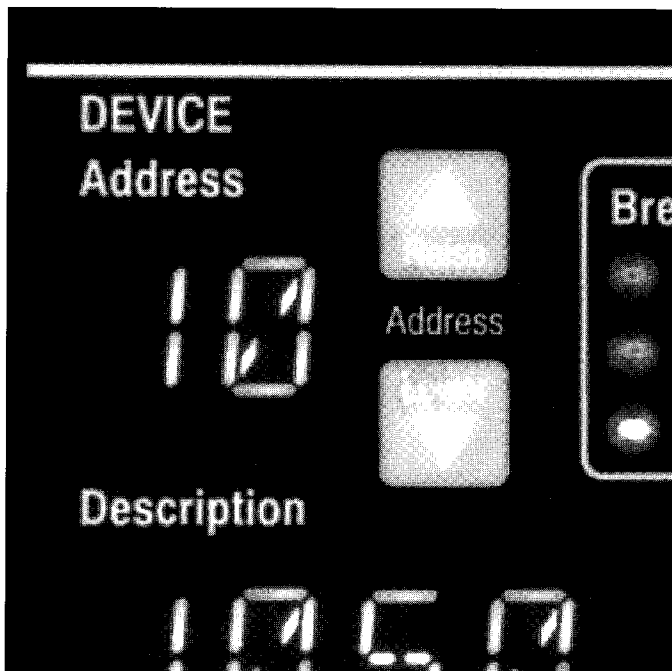


Figure 3-7 Raise and Lower Pushbuttons

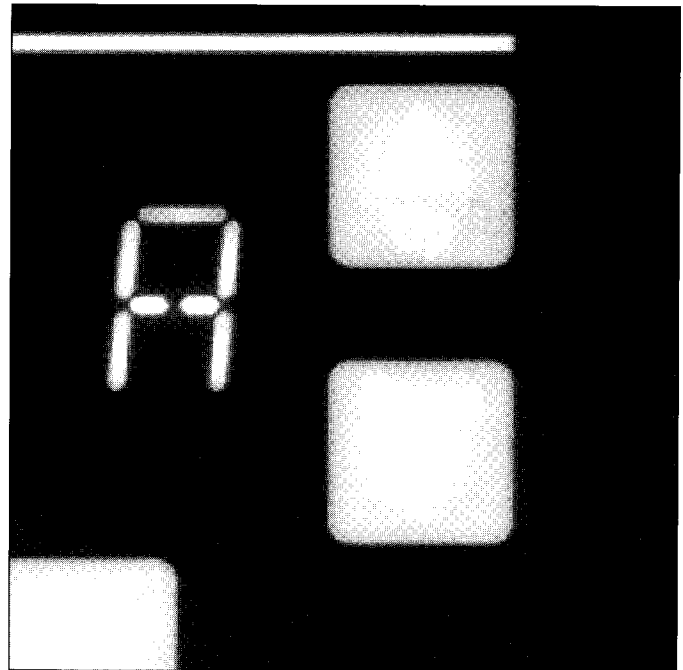


Figure 3-8 Pushbuttons Near Function Display

tively through the menu option screens (Figure 3-8). If either pushbutton is held depressed, the menu option screens will scroll continuously with a momentary pause on each screen. Once a specific menu option screen is selected, each pushbutton can function in one of two different ways:

- Used to move from one selection to another within the selected menu option
- Used to change displayed programmed information or establish a protective password

If, for example, the **Meter** menu is selected, each pushbutton will be used to move from selection to selection within the **Meter** menu. If the **Program Settings** menu is selected, the two pushbuttons will be used to change a displayed programmed value to a new programmed value.

### 3-4.3 HELP PUSHBUTTON

When the **Help** pushbutton, located under the **Function Display**, is pressed and released with the Breaker Interface Module in any operational mode, an English language message scrolls across the **Function Display** (Figure 3-8). The messages relate to what is presently being viewed in the **Function Display** and are intended to assist the operator.

### 3-4.4 ESCAPE PUSHBUTTON

The **Escape** pushbutton, located under the **Function Display**, is used to move the **Function Display** back to the top menu option screen one step at a time (Figure 3-8).

### 3-4.5 SELECT PUSHBUTTON

The **Select** pushbutton, located under the **Function Display**, is used to select the menu option displayed in the **Function Display** or to enter a selected protective password (Figure 3-8).

### 3-4.6 NEXT PUSHBUTTON

The **Next** pushbutton, located under the **Function Display**, is used in lieu of the **Up** and **Down** pushbuttons to move from one selection to another within the selected menu option any time the **Up** and **Down** pushbuttons are being used to make programmed information changes (Figure 3-8).

### 3-4.7 SELECT/NEXT PUSHBUTTON COMBINATION

The simultaneous use of the **Select** and **Next** pushbut-

tons, as indicated under the pushbuttons with a white tie line, accomplish the following:

- Saves programmed settings
- Initiates a test
- Acknowledges an alarm and commits it to memory

### 3-5 MIMIC TIME-CURRENT CURVE

A LED type mimic time-current curve, located in the lower left portion of the operator panel under **Protection Status**, is used to identify what specific portion, if any, of the identified circuit breaker's characteristic curve is being affected by trip unit action or Breaker Interface Module operations (Figure 3-9). The LEDs operate as described in paragraph 3-2.3 and provide critical information instantaneously after the automatic tripping of a circuit breaker. In addition, the mimic time-current curve supplements the information displayed in the **Function Display** during the viewing or programming processes.

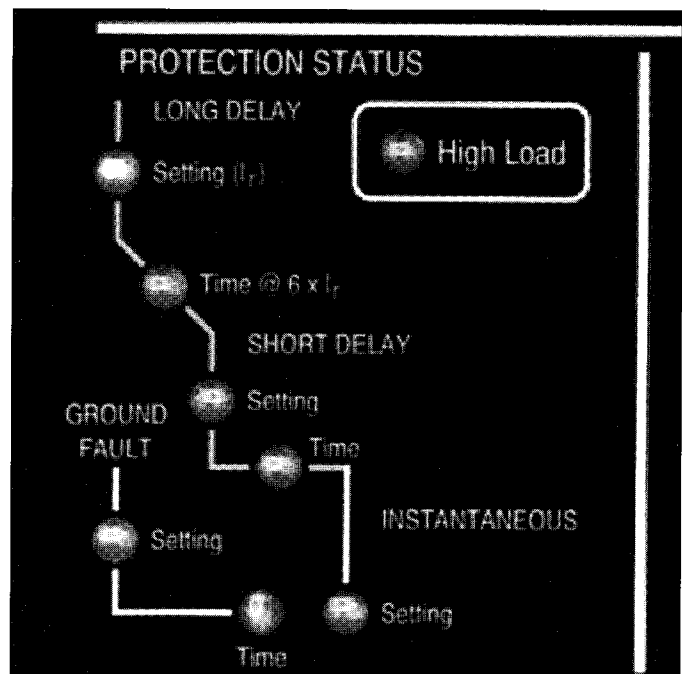


Figure 3-9 LED Type Mimic Time-Current Curve