

SECTION 4: OPERATION

4-1 GENERAL

This section specifically describes the operation and functional use of the Breaker Interface Module. It is recommended that the operator review the material presented in Sections 2 and 3 prior to operating and using the Breaker Interface Module.

The Breaker Interface Module is a device used to access and program the capabilities of OPTIM 750, OPTIM 1050 Trip Units. It can also be used to access only Digitrip RMS 810 and Digitrip RMS 910 Trip Units. Specific details associated with each individual trip unit are covered in separate instruction manuals for the different trip units (Appendix A). Only the information required to properly and effectively utilize the Breaker Interface Module is presented in this manual.

Insure that the Breaker Interface Module has been properly installed and wired in keeping with the information presented in Section 5 before operating this device. It further assumes that all the devices to be monitored are connected and network and/or sub-network wiring is in place.

A Breaker Interface Module menu diagram provides an overall picture of this device's capabilities and the order in which the functional displays appear as the device is operated (Figure 4-1). It is highly recommended that this menu diagram be reviewed before proceeding with the rest of this section. Such a review will greatly assist with the initial understanding. In addition, the menu diagram provides a good review for those already familiar with the Breaker Interface Module.

Section 4 covers the operation and use of the Breaker Interface Module. It is broken down into six general categories:

- Security Password
- Power Application
- Configure Trip Units
- Displayed Information
- Communications
- Test Trip Units

4-2 SECURITY PASSWORD

The Breaker Interface Module utilizes a password to restrict access to certain functional options. A valid password is required to access the following main menu options or specific options within a particular main menu option:

- *Program Settings*
- *Program Group*
- *Test*
- *System Only*
 - Set Date
 - Set Time
 - Update
 - Set Description
 - Set Password

The Breaker Interface Module is supplied with a factory programmed password of **10000**. If it is desirable to establish a new password, follow the procedure outlined in paragraph 4-2.1.

4-2.1 CHANGE SECURITY PASSWORD

- Step 1:** Use the **Up** or **Down** or **Next** pushbuttons to move to the **System** main menu.
- Step 2:** Use the **Select** pushbutton to enter the **System** main menu.
- Step 3:** Continue using the **Down** pushbutton to move to the **Set Security Password** display (Figure 4-2).
- Step 4:** Press and release the **Select** pushbutton again. The display will ask for a protective password. Use the **Up** or **Down** pushbuttons to arrive at the present valid password. As previously mentioned, the factory programmed password is **10000**.
- Step 5:** Use the **Select** pushbutton to enter the valid password. Once the password is accepted, the far left character space in the password field begins to blink, and the existing password continues to be displayed. The blinking indicates which character is able to be changed. The choice of characters is a number from 0 to 9.
- Step 6:** Use the **Up** or **Down** pushbuttons to change individual characters and the **Next** pushbutton to move from one character to another.
- Step 7:** When the displayed password is acceptable, press and release the **Select** and **Next** pushbuttons simultaneously to enter the new password into memory. The **Function Display** will return to **Set Password**.
- Notice:** *It is strongly suggested that a record be made of any new password and stored in a safe place. If a new password is programmed and*

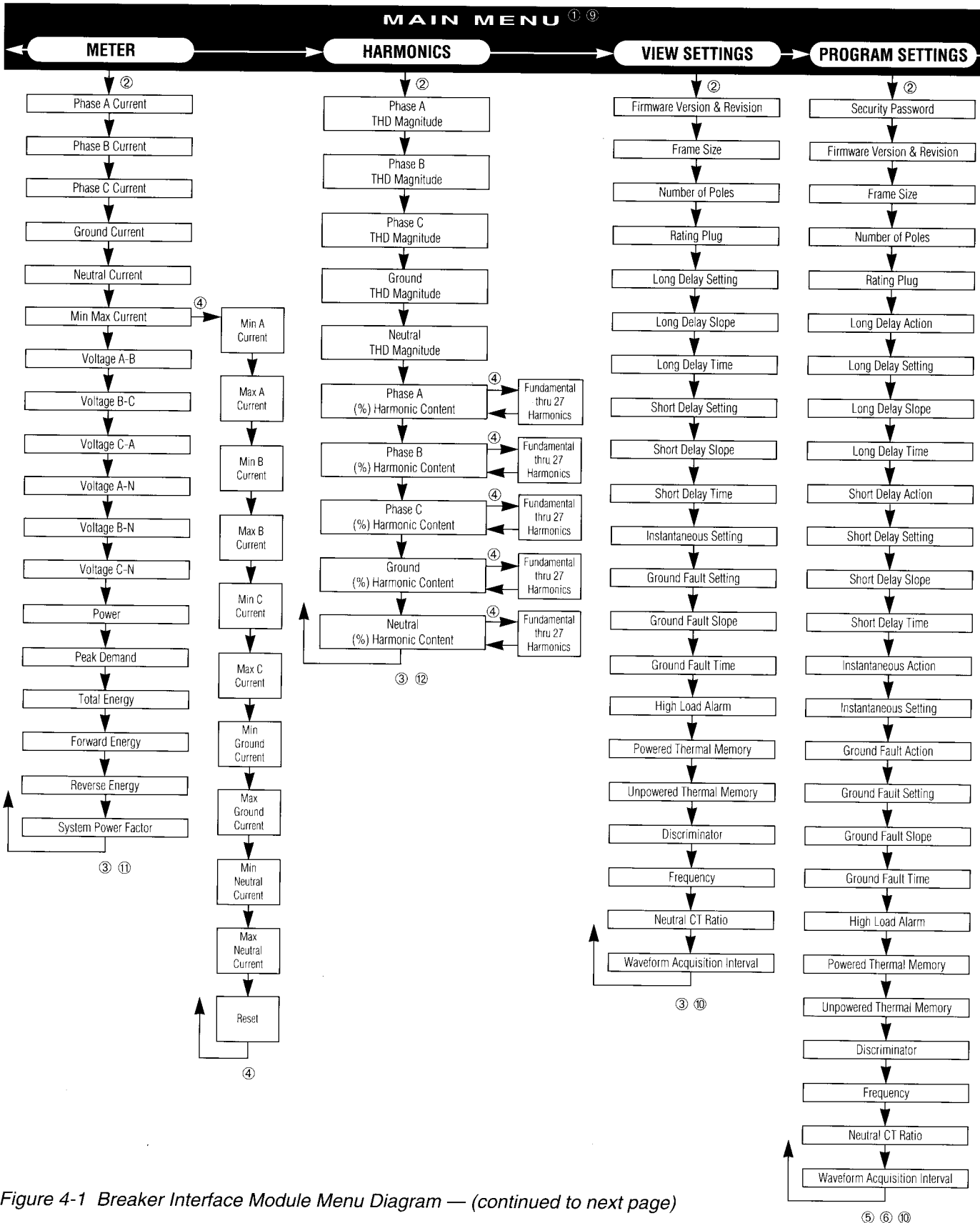
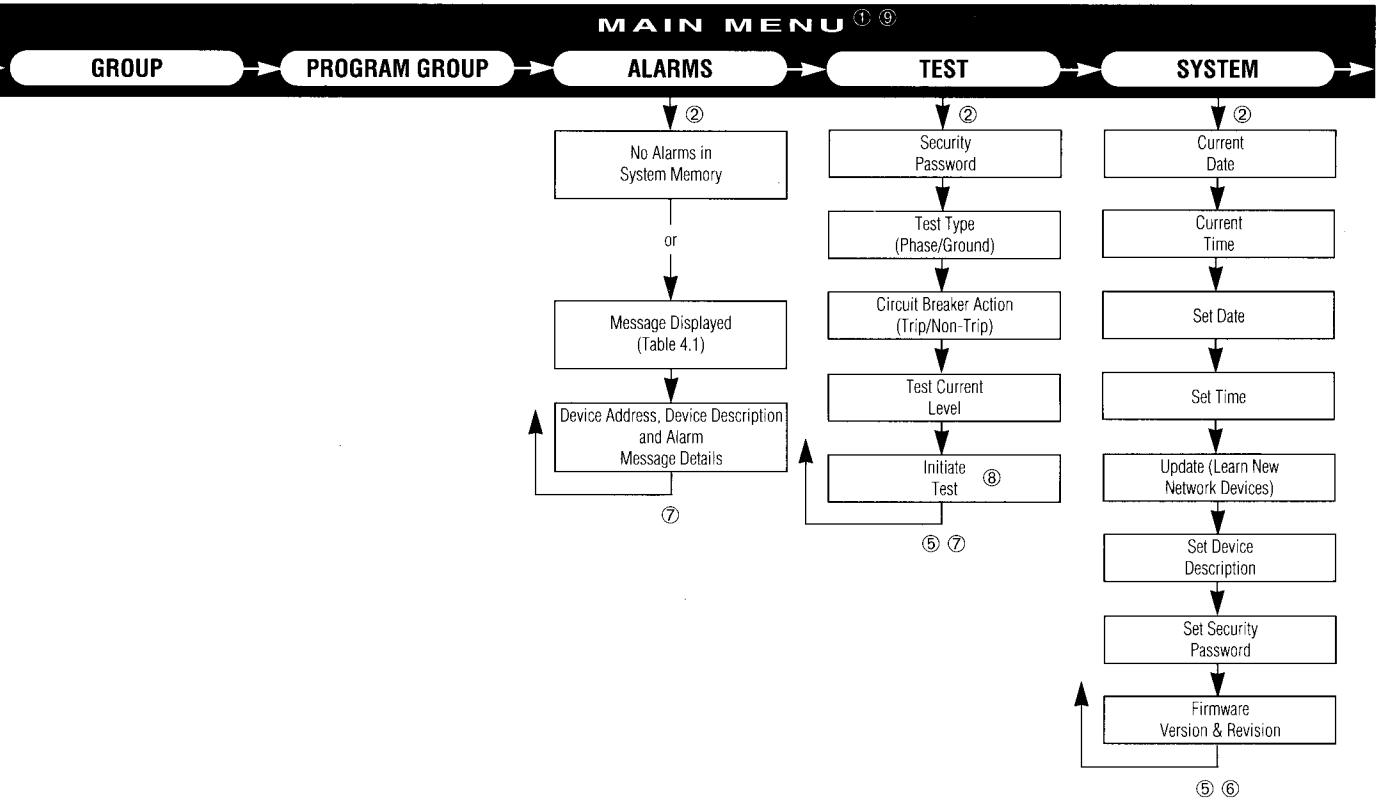


Figure 4-1 Breaker Interface Module Menu Diagram — (continued to next page)



- ① Use **Up**, **Down** or **Next Pushbuttons** to move from one **Main Menu** item to another.
- ② Use **Select Pushbutton** to enter a specific **Main Menu** item.
- ③ Use **Up**, **Down** or **Next Pushbuttons** to move between categories within **Main Menu** item. Use **Escape Pushbutton** at any time to exit back to **Main Menu** item.
- ④ Use **Select Pushbutton** to enter the "Min Max Current" or "Fundamental through 27 Harmonics" categories. Use the **Escape Pushbutton** to exit to **Meter Menu** or **Harmonics Menu** item.
- ⑤ Use **Next Pushbutton** to move between categories within **Main Menu** item. Use **Up** or **Down Pushbuttons** to make changes to specific programmable categories.
- ⑥ Use **Escape Pushbutton** to exit **Main Menu** item without saving changes. Use **Select** and **Next Pushbuttons** simultaneously to save category changes and exit to **Main Menu** item.

- ⑦ Use **Raise** and **Lower Pushbuttons** simultaneously to remove displayed alarm message from memory. Use **Escape Pushbutton** to exit to **Main Menu** item.
- ⑧ Use **Select** and **Next Pushbuttons** simultaneously to reset all minimum and maximum currents or initiate test.
- ⑨ Use **Help Pushbutton** anytime for brief message on displayed selection.
- ⑩ Some entries in **View Settings** may not be visible due to other settings.
- ⑪ Only the metered values supported by the addressed device will be displayed.
- ⑫ Only the harmonic information supported by the addressed device will be displayed.

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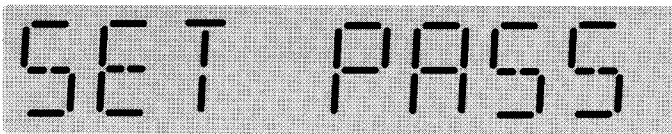


Figure 4-2 Set Password Display

forgotten or lost at a later date, the Breaker Interface Module will have to be reprogrammed by Cutler-Hammer. Contact the Advanced Product Support Center at 1-800-542-7883 for assistance.

4-3 POWER APPLICATION

Notice: Prior to applying power to the Breaker Interface Module, be certain that all DIP switches are correctly set as described in Paragraph 2-3.1 and Table 5.1. Of special significance are the Learn and Run modes as established by the position of DIP Switch 1. Device addresses and descriptions must be learned if this is the first time power is being applied to the Breaker Interface Module or is being updated because new devices have been added to an existing system.

When applying power to the Breaker Interface Module, it is important to know whether or not this is the initial application of power to the device. If this is not the initial power application and no new devices have been added to the system, power can be applied without any further actions. The Breaker Interface Module, having been previously configured, will immediately begin to function as intended. The **Operational** LED will blink green, a device address and description will be displayed, and **Meter** will appear in the **Function Display**.

If this is the **first time** power is being applied to the Breaker Interface Module or **new devices** have been added to an existing system, additional steps must be taken to insure that the Breaker Interface Module functions properly. These steps follow under the headings **Run** mode and **Learn** mode.

4-3.1 RUN MODE

The Breaker Interface Module should always be in the **Run** mode except for the instances described in the next section under **Learn** mode. The **Run** mode is determined by the position of DIP switch 1, which is the up position for the **Run** mode.

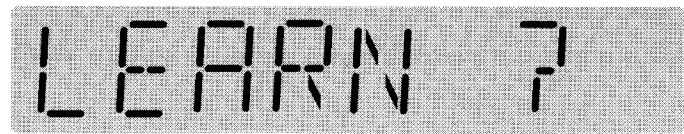


Figure 4-3 Learn Display

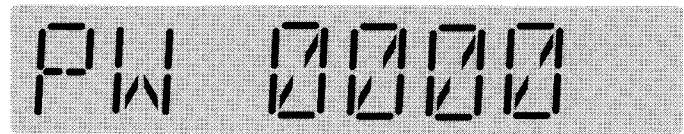


Figure 4-4 Set Password Display

4-3.2 LEARN MODE

If this is the **first time** for power application to the Breaker Interface Module, steps 1 through 7 should be followed to insure that the Breaker Interface Module has all the correct device addresses and descriptions in memory:

- Step 1:** Make certain that all DIP switches are in the correct position and apply power to the Breaker Interface Module. The **Operational** LED will blink green and Cutler-Hammer will be momentarily displayed.
- Step 2:** The word **Learn** followed by a question mark (?) will appear in the **Function Display** (Figure 4-3). Press and release the **Select** pushbutton to make the Breaker Interface Module begin the learning process.
- Step 3:** The next display will ask for the entry of a valid password (Figure 4-4). Keep in mind that the factory programmed password is **10000**.
- Step 4:** The far left character of the five character password, zero in this instance, will be blinking. The blinking indicates which digit is available for change. Use the **Up** pushbutton to change the zero to one. The valid password of 10000 is now displayed.
- Step 5:** Press and release the **Select** pushbutton to enter the displayed password. Upon entry of a valid password, the word **Learning** begins blinking in the **Function Display**. This indicates the Breaker Interface Module is polling the system for the address and description of all connected devices. At the same time,

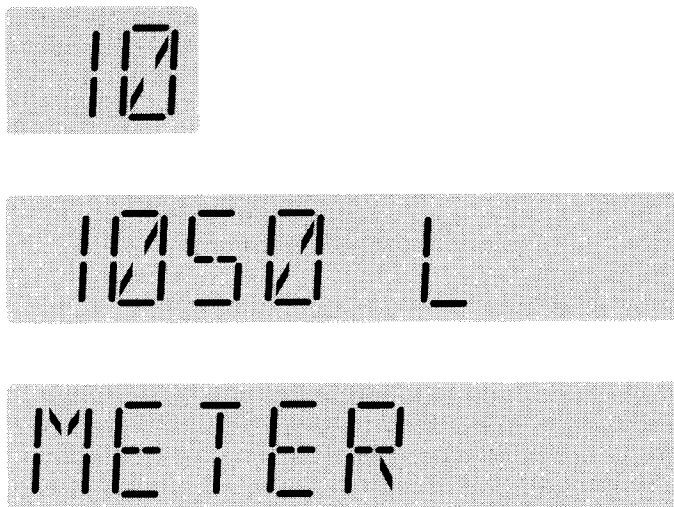


Figure 4-5 Typical Breaker Interface Module Displays

device addresses will appear in the **Device Address Display**.

Step 6: When the learning process is complete, the lowest device address will appear in the **Device Address Display**, the device description will appear in the **Description Display**, and **Meter** will appear in the **Function Display** (Figure 4-5).

Step 7: The learning process is now complete and DIP switch 1 should be moved to the up position (**Run mode**). The switch remains in this position until new devices are added to the system.

If this is **not the first time** for power application to the Breaker Interface Module but address and description updating must be performed because new devices have been added to the system, steps 1 and 2 should be followed:

Step 1: Set DIP switch 1 to the **Learn** mode (down position).

Step 2: Use the **Update** feature of the **System** display menu to add the new addresses and descriptions without losing previously stored addresses and descriptions. Refer to Paragraph 4-4.2 for specific instructions.

Notice: If the user prefers to have device descriptions other than those automatically assigned during the **Learn** mode, use of the **Set Device**

Description feature of the **System** display menu permits this change. Refer to Paragraph 4-4.3 for additional setup information.

4-4 CONFIGURE

Notice: The **OPTIMizer Hand Held Programmer** should be used to establish unique device addresses and the Baud Rate before configuring the trip unit. Refer to Instruction Book 29C892 covering the **OPTIMizer Hand Held Programmer** for details.

The Breaker Interface Module is used to establish specific system functions and program protective, coordination and alarm features.

First check and set or perform, if required, the following system functions found under the **System** menu:

- Set Date
- Set Time
- Update
- Set Description
- Set Password

Once system functions are established, the protective, coordination and alarm features are programmed as required. The general features to be programmed are:

- Time-current setpoints
- Protection options
- Alarm levels

Trip unit configuration and/or the configuration of groups of devices take place within three different menus:

- Program Settings
- Program Group
- Alarms

The Breaker Interface Module, as just outlined, permits the programming of individual trip units and groups of individual devices. The group programming capability is especially helpful when the cumulative information of a group of devices is required. It eliminates the need to collect and record individually monitored values. Refer to the Breaker Interface Module menu diagram (Figure 4-1) to review all the programmable features included in these menus.

The Programming associated with each menu is addressed in this section to facilitate the programming process. This information is not, however, intended to cover in detail all the available trip unit protective functions, settings and coordination possibilities. For specific

details on the capabilities of individual trip units, refer to Instruction Book 29C891 covering OPTIM Trip Units.

4-4.1 SETTING DATE AND TIME

The present date and time are displayed first under the **System** display menu. If, for any reason, the displayed date and/or time must be altered, the programmable **Set Time** and **Set Date** features are available for this purpose. Procedural steps to accomplish these changes follow:

- Step 1:** Use the **Up** or **Down** pushbuttons to move to the **System** display menu.
- Step 2:** Use the **Select** pushbutton to enter the **System** display menu. The present date will be the first display (Figure 4-6).
- Step 3:** Continue using the **Down** or **Next** pushbutton to move to the **Set Date** display (Figure 4-7).
- Step 4:** To enter **Set Date**, press and release the **Select** pushbutton. The display will ask for a protective password. Use the **Up** or **Down** pushbuttons to arrive at a valid password. As previously mentioned, the factory programmed password is **10000**.
- Step 5:** Use the **Select** pushbutton to enter the valid password. Once the password is accepted, the present date first viewed in Figure 4-6 will be displayed with the two character month blinking. The blinking indicates which characters are able to be changed. Use the **Up** or **Down** pushbuttons to make the changes.
- Step 6:** Once any required change is made to the month, use the **Next** pushbutton to move to the day and year for any necessary changes.
- Step 7:** When the displayed date is correct, press and release the **Select** and **Next** pushbuttons simultaneously to enter the new date into memory.

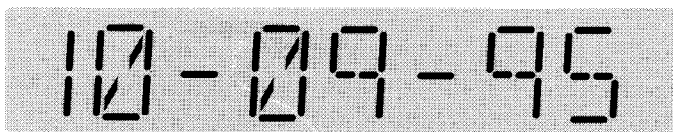


Figure 4-6 Typical Present Date Display

- Step 8:** Use the **Down** pushbutton to move to the **Set Time** display if a change in the time is required. To alter the present programmed time, the procedure is the same as just described in the previous steps for changing the date.

- Step 9:** Use the **Escape** pushbutton to return to the **System** display menu.

4-4.2 UPDATING FOR ADDED DEVICES

As outlined in Paragraph 2-3.1, DIP switch 1 in the down position puts the Breaker Interface Module in the **Learn** mode. In this position, a newly installed Breaker Interface Module is capable of learning the addresses and descriptions of all system devices. If new devices are added to an existing system at a future time, an Update feature is provided as part of the **System** display menu to permit the learning of new device addresses and descriptions. Use of this feature will not only learn and store the new information, it protects already stored addresses and descriptions from any inadvertent changes. To use the **Update** feature, refer to the following steps:

- Step 1:** Move DIP switch 1 to the down position (**Learn** mode).
- Step 2:** Use the **Up** or **Down** pushbuttons to move to the **System** display menu.
- Step 3:** Use the **Select** pushbutton to enter the **System** display menu. The present date will be the first display (Figure 4-6).
- Step 4:** Continue using the **Down** or **Next** pushbuttons to move to the **Update** display. To enter **Update**, press and release the **Select** pushbutton. **Learn ?** will appear in the **Function Display** (Figure 4-3).
- Step 5:** Press and release the **Select** pushbutton again. The display will ask for a protective password. Use the **Up** or **Down** pushbuttons to arrive at a

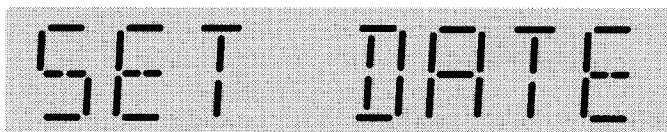


Figure 4-7 Set Date Display

valid password. As previously mentioned, the factory programmed password is **10000**.

Step 6: Use the **Select** pushbutton to enter the valid password. Once the password is accepted, the Breaker Interface Module begins the learning process as indicated by the blinking word **Learning** in the **Function Display**.

Step 7: When the learning process is completed, System will again appear in the **Function Display**.

Step 8: Return DIP switch 1 to the up position (Run mode).

4-4.3 CHANGE DEVICE DESCRIPTIONS

If device descriptions automatically assigned during the learning process are not meaningful enough for a particular system, a **Set Description** feature is provided as part of the **System** display menu to permit changing existing device descriptions to new descriptions. Proceed with the following steps to make any desired changes:

Step 1: Check to be certain that the address appearing in the **Device Address Display** is the address of the device requiring a description change.

Step 2: Use the **Up** or **Down** pushbuttons to move to the **System** display menu.

Step 3: Use the **Select** pushbutton to enter the **System** display menu.

Step 4: Continue using the **Down** or **Next** pushbuttons to move to the **Set Description** display (Figure 4-8).

Step 5: Press and release the **Select** pushbutton again. The display will ask for a protective password. Use the **Up** or **Down** pushbuttons to arrive at a valid password. As previously mentioned, the factory programmed password is **10000**.

Step 6: Use the **Select** pushbutton to enter the valid password. Once the password is accepted, the far left character in the **Description Display** begins blinking (Figure 4-9). The blinking indicates which character is able to be changed. The description can be up to 8 characters in length. The choice of characters can be a blank space, a number from 0 to 9, or a letter from A to Z.

Step 7: Use the **Up** or **Down** pushbuttons to change individual characters and the **Next** pushbutton to move from one character to another.

Step 8: When the displayed description is acceptable, press and release the **Select** and **Next** pushbuttons simultaneously to enter the new description into memory. The new description appears in the **Description Display** and **Set Description** again appears in the **Function Display** (Figure 4-10).

4-4.4 PROGRAM SETTINGS MENU

Viewing already programmed settings without being able to alter the settings is made possible by the **View Settings** menu. This menu is discussed in detail in Paragraph 4-5 entitled "Displayed Information." The information displayed in the **View Settings** menu is established by the settings programmed here in the **Program Settings** menu.

Programming Reminders

Keep in mind that the setting possibilities shown in Figure 4-1 for the **Program Settings** menu are all of the possibilities within the Digitrip Family of Trip Units. If a particular trip unit does not support a particular feature,

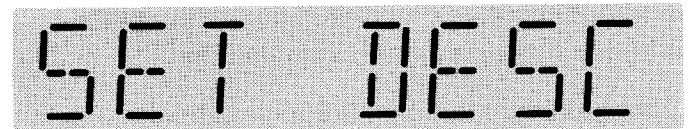


Figure 4-8 Set Description Display

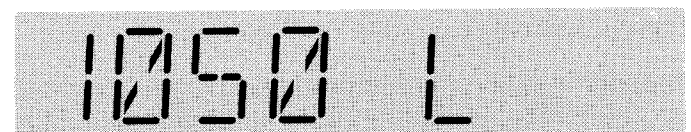


Figure 4-9 Typical Existing Description Example

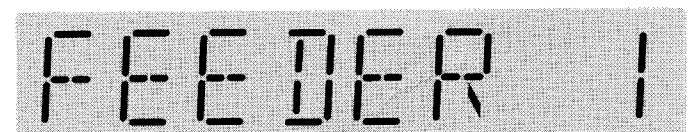


Figure 4-10 Typical New Description Example

that feature will not be displayed as the operator moves through the menu.

The **Program Settings** menu is Password Protected. The operator must know a valid password to proceed. The factory programmed password is **10000**. This may have been altered. Refer to Paragraph 4-2.

A trip unit will continue to provide protection in keeping with its presently programmed settings until new settings are programmed, entered and accepted.

Programmed settings can only be saved as a group through the simultaneous use of the **Select** and **Next** pushbuttons, not as individual settings.

In addition to using the **Help** pushbutton to define a particular display during programming, it should be noted that the **LED** type mimic time-current curve helps to further identify what is being viewed in the **Function Display**. When the long delay setting is being programmed for example, the programmed setting value in terms of the number of amperes only appears in the display. The long delay setting LED, however, is lit to indicate the particular function.

Several of the settings included within the **Program Settings** menu are included for information purposes and are not programmable through the Breaker Interface Module. They are:

- *Circuit Breaker Frame Size*
- *Number of Poles*
- *Rating Plug Size*
- *Device Firmware Version and Revision*

These settings are automatically established during communications between the Breaker Interface Module and the trip unit.

Any operator associated with programming will quickly discover that programming through the Breaker Interface Module is a matter of simple, repetitive steps:

- Step 1:** Check to be certain that the address and description being displayed are correct.
- Step 2:** Use the **Up** or **Down** pushbuttons to move to the **Program Settings** display menu (Figure 4-11).
- Step 3:** Use the **Select** pushbutton to enter the **Program Settings** display menu. The display will ask for a security password. Use the **Up** or **Down** pushbuttons to arrive at a valid password. As previously mentioned, the factory programmed password is **10000**.

Step 4: Use the **Select** pushbutton to enter the valid password. Once the password is accepted, the frame size will appear in the **Function Display** (Figure 4-12).

Step 5: Use the **Next** pushbutton to move from programmable feature to programmable feature. Keep in mind that once a feature is passed by, there is no pushbutton that will move the display back. If the operator wants to visit a setting already passed in the display, it will require continued forward scrolling.

Step 6: Use the **Up** or **Down** pushbuttons to move through all the possible choices within a particular setting until the required setting is displayed.

Step 7: Once all the settings are set as required, use the **Select** and **Next** pushbuttons simultaneously to save and establish the new settings. When the pushbuttons are pressed and released simultaneously, **Wait** appears in the **Function Display** until the process is complete. Once complete, an **Accepted** or **Rejected** message will be displayed. The **Accepted** or **Rejected** message remains displayed until cleared by the use of any pushbutton. Once cleared, the **Program Settings** display appears.

4-4.5 PROGRAM GROUP MENU

Program Group menu entry is a password protected area that will allow the user to define up to 8 groups for energy monitoring purposes. Any energy monitoring device that is on the sub-network (i.e. OPTIM 1050, Digitrip 810/910, or Energy Sentinels) can be included in one or more groups for the purpose of collective moni-

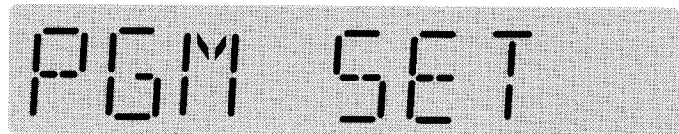


Figure 4-11 Program Settings Display

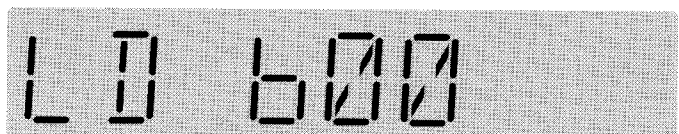


Figure 4-12 Typical Frame Size Display

toring of power and energy parameters. The user can define these 8 groups by selecting which group they will be working with, then including or excluding each of the energy monitoring devices.

After the groups are defined, the collective energy and power can be viewed by the user upon entering the Group Menu entry.

4-4.6 ALARMS MENU

When an alarm has occurred with respect to a device or devices known by the Breaker Interface Module to be on the system, the **Alarm** LED is lit red. At the same time, information relevant to the event is stored in memory. The **Alarms** menu provides a means for accessing information pertaining to a particular alarm or all of the alarms in memory. The **Alarm** LED remains lit until the stored information for all alarms is cleared.

Seven possible "Alarm Messages" can appear in the **Function Display** while in the **Alarms** menu. The "Alarm Message" blinks when displayed in the **Function Display**. The explanatory information associated with each "Alarm Message" scrolls across the **Function Display**. Refer to Table 4.1 for the possible "Alarm Messages" and the specific explanatory information provided for each message.

When the **Alarms** menu is accessed, a **No Alarms** message is displayed if no alarm is stored in memory (Figure 4-13). If one or more alarms are stored in memory, the device address, device description, and alarm

message associated with the most recent alarm are displayed when the **Alarms** menu is accessed. Use of the **Up** or **Down** pushbuttons will access other older stored alarms. Procedural steps to move through the **Alarms** menu for a typical alarm occurrence are as follows:

- Step 1:** Use the **Up** or **Down** pushbuttons to move to the **Alarms** menu (Figure 4-14).
- Step 2:** Use the **Select** pushbutton to enter the **Alarms** menu. The device address, description and alarm message are displayed for the most recent alarm (Figure 4-15).
- Step 3:** When the **Select** pushbutton is used, a message scrolls across the **Function Display** providing further information on the "Alarm Message." For example, **Short Delay Trip, Magnitude of IA, IB, IC, IG and IN, Date and Time of Occurrence**. When the message is completed, **Tripped** is once again displayed.
- Step 4:** Simultaneous use of the **Raise** and **Lower** pushbuttons will clear that particular alarm message. If this action is not taken, the message will continue to be stored in memory. The simultaneous use of the same pushbuttons held depressed will clear all alarm messages from memory, and would be indicated by the **Alarm** LED no longer being illuminated.
- Step 5:** Use the **Up** or **Down** pushbuttons to access older stored "Alarm Messages." They would also be identified in a manner similar to Figure 4-13.

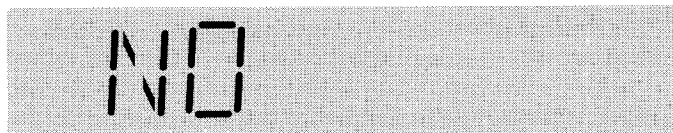


Figure 4-13 No Alarms Display

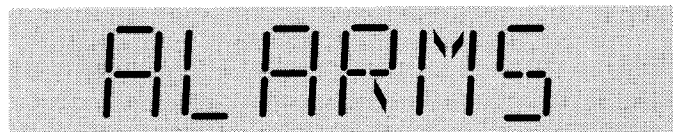


Figure 4-14 Alarms Menu Display

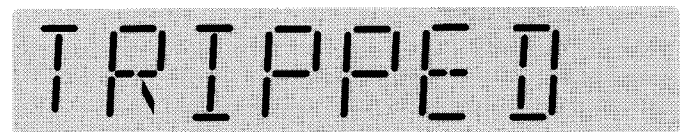
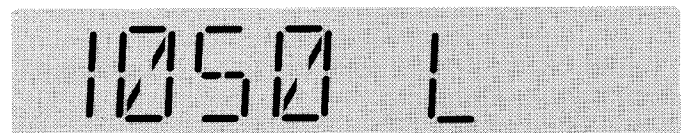
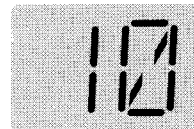


Figure 4-15 Typical Alarms Menu Display

Table 4.1 Alarms Menu Messages

Displayed Message	Explanatory Information Provided
LDPU	Long Delay Pickup, Date and Time of Occurrence
TRIPPED	(1) Long Delay Trip, Magnitude of Associated Currents, Date/Time of Occurrence (2) Short Delay Trip, Magnitude of Associated Currents, Date/Time of Occurrence (3) Instantaneous Trip, Magnitude of Associated Currents, Date/Time of Occurrence (4) Ground Fault Trip, Magnitude of Associated Currents, Date/Time of Occurrence (5) Discriminator, Date/Time of Occurrence (6) Over Temperature, Date/Time of Occurrence (7) Override, Date/Time of Occurrence (8) Plug, Date/Time of Occurrence
NO RESP	No Response, Date/Time of Occurrence
NEUT CUR	Neutral Overcurrent Alarm, Date/Time of Occurrence
GND CUR	Ground Overcurrent Alarm, Date/Time of Occurrence
BAD FRM	Bad Frame Size, Date/Time of Occurrence
EEROM	EEROM Error Detected, Date/Time of Occurrence

Step 6: When finished viewing alarm information, use the **Escape** pushbutton and the **Function Display** returns to the **Alarms** menu (Figure 4-14).

4-5 DISPLAYED INFORMATION

The Breaker Interface Module displays a comprehensive list of metered parameters and provides a large number of visual LED indications. For specific information concerning the LED indications, refer to Paragraph 3-2.

A wide variety of parameters and conditions are accessible via the operator panel of the Breaker Interface Module. Refer to the Breaker Interface Module menu diagram (Figure 4-1) to review the types of displayed information available. Figure 4-1 provides all the possibilities for parameter display. If a particular trip unit does not support a particular parameter, it will not be displayed.

It should be noted that displayed information is available under four different menus, although actual metered parameters are provided by only two of the four as indicated:

- **Meter** menu (metered parameters)
- **Harmonics** menu (metered parameters)
- **View Settings** menu (actual trip unit settings)
- **Group** menu (group metered parameters)

The following steps are used to view displayed information in any of the four outlined menus:

Step 1: Check to be certain that the address and description being displayed are correct.

Step 2: Use the **Up** or **Down** pushbuttons to move to the desired menu, **Meter** menu for example.

Step 3: Use the **Select** pushbutton to enter the selected menu and the first displayed parameter will appear in the **Function Display**. In the case of the **Meter** menu, the display would be **Phase A Current** (Figure 4-16).

Step 4: Use the **Up** or **Down** or **Next** pushbuttons to move from one parameter to another.

Step 5: When finished viewing parameters in a particular menu, use the **Escape** pushbutton to exit

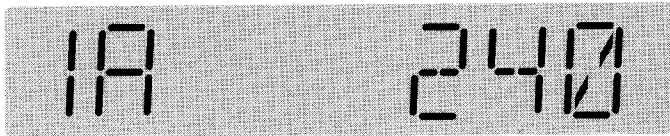


Figure 4-16 Typical Meter Menu Display

that menu. The **Function Display** will return to the original menu heading, **Meter** menu for this example.

Step 6: To view the same settings for another device, use the **Address Raise** or **Lower** pushbuttons to scroll to the desired device (Figure 4-17).

4-6 COMMUNICATIONS

The Breaker Interface Module can communicate over a network and/or a sub-network. All programming, configurations, advanced warnings, diagnostics, monitoring and control functions are accessible in either or both manners (Figures 1-2 and 1-3).

4-6.1 SUB-NETWORK COMMUNICATIONS

Communications from the Breaker Interface Module to trip units and energy monitoring devices is available through a three pin male connector (Paragraph 2-3.2). Through this connection, the Breaker Interface Module is able to communicate with up to 50 total devices. The Breaker Interface Module assumes the role of the network master on the sub-network with all connected devices slave to the Breaker Interface Module. From this connection, the Breaker Interface Module is able to poll devices on the sub-network to obtain and place in memory up to date information. If the Breaker Interface Module is also part of a Master Network, collected information can be sent to the Master Network.

4-6.2 MAIN NETWORK COMMUNICATIONS

The Breaker Interface Module is an IMPACC compatible device. As such, it can be used to remotely monitor, control and program connected devices on a sub-network. Main network communications is available through the use of a PONI Communication Module (Paragraphs 2-3.3 and 2-4). In this situation, the Breaker Interface Module assumes the role of a slave device on the network. The Breaker Interface Module responds to all supported pass through commands intended for devices on the sub-network.



Figure 4-17 "Address" Raise and Lower Pushbuttons

IMPACC is a noise immune communications system that permits communications from the Breaker Interface Module to a master computer via a high frequency carrier signal over a shielded twisted pair of conductors (Figure 5-3). The shielded twisted pair of conductors can extend up to 7500 feet without the use of repeaters. Communications between IMPACC compatible devices, such as the Breaker Interface Module, and the master computer is made possible by the PONI Module.

Functions available remotely through the communications option are:

- Monitoring and trending of displayed values and device status
- Initiation of a Harmonic Analysis and retrieval of waveform analysis information
- Retrieval of event information
- Activation of relay output contacts
- Device Programming

For an overview of IMPACC capabilities including the use of Series III Software, Analysis Functions and Enhanced Graphics capabilities, refer to Instruction Book 29C890 entitled "Instructional Overview for Use of the Digitrip OPTIM Trip Unit System."

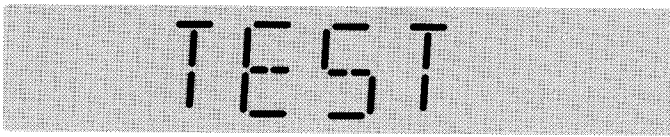


Figure 4-18 Test Display

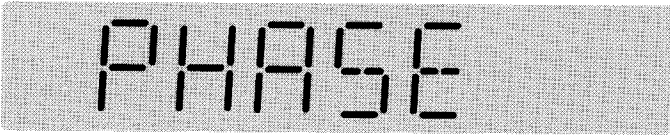


Figure 4-19 Phase Test Display

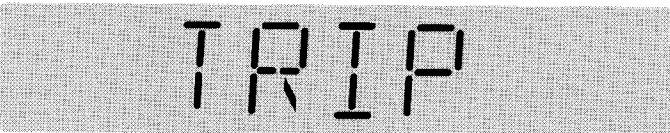


Figure 4-20 Trip Test Display

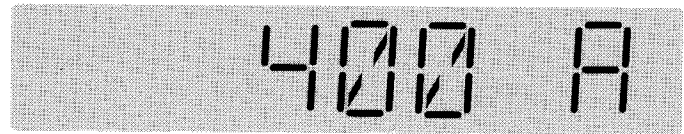


Figure 4-21 Typical Test Current Display

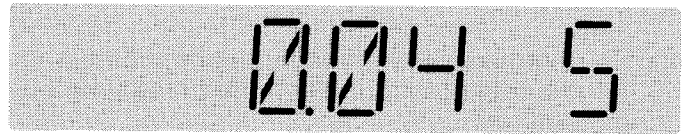


Figure 4-22 Typical Test Time in Seconds Display

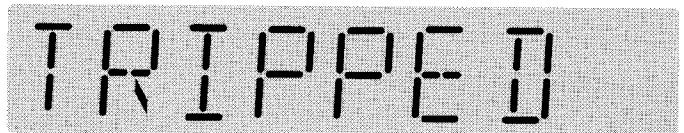


Figure 4-23 Tripped Alarm Display

4-7 TEST TRIP UNITS

Digitrip OPTIM 750 and 1050 Trip Units contain a test capability. One of the means for performing tests is through the use of the Breaker Interface Module. The intent is to permit the periodic performance of tests that verify the functional performance of the trip unit. Two types of test are possible through the use of the Breaker Interface Module, the "Non-Trip" and the "Trip" tests.

Proceed with the following steps to perform a "Trip" or a "Non-Trip" test:

- Step 1:** Use the **Up** or **Down** pushbuttons to move to the **Test** display menu (Figure 4-18).
- Step 2:** Use the **Select** pushbutton to enter the **Test** menu. The display will ask for a security password. Use the **Up** or **Down** pushbuttons to arrive at a valid password. As previously mentioned, the factory programmed password is **10000**.
- Step 3:** Use the **Select** pushbutton to enter the valid password. Once the password is accepted, **Phase** will appear in the **Function Display** (Figure 4-19). A choice is now offered between a **Phase** or a **Ground** test.
- Step 4:** Use the **Up** or **Down** pushbuttons to display the type of test desired, **Phase** or **Ground**.
- Step 5:** Once **Phase** or **Ground** has been selected and is correctly displayed, use the **Next** pushbutton and **Trip** will be displayed (Figure 4-20). A choice is now offered between a **Trip** or a **Non-Trip** test.
- Step 6:** Use the **Up** or **Down** pushbuttons to display the type of test desired, **Trip** or a **Non-Trip**.
- Step 7:** Once **Trip** or a **Non-Trip** has been selected and is correctly displayed, use the **Next** pushbutton and the magnitude of the test current in amperes is displayed (Figure 4-21).
- Step 8:** Use the **Up** or **Down** pushbuttons to arrive at the desired magnitude of test current.
- Step 9:** Once the desired magnitude of test current is displayed, use the **Select** and **Next** pushbuttons simultaneously to activate the test. The test will be performed as programmed and the test time in seconds will be displayed (Figure 4-22). Testing is now completed. It should be noted that the mimic time-current curve will appropriately indicate the test, the **Alarm LED** will be lit red, and the **Cause of the Trip LED** on the trip unit will be lit red.
- Step 10:** Use the **Escape** pushbutton and **Tripped** will appear in the **Function Display** blinking (Figure 4-23). This indicates that alarm infor-

mation is stored in memory for the test just concluded.

Step 11: Use the **Select** pushbutton and the following tripped information for the just completed test will scroll across the **Function Display**:

- Protective function causing the trip
- Magnitude of trip current for each phase, ground and neutral, as appropriate
 - Date of the trip
- Time of the trip

Once the information is complete, **Tripped** is once again displayed. Keep in mind that this

alarm can be cleared through the simultaneous use of the **Raise** and **Lower** pushbuttons.

Step 12: Use the **Escape** pushbutton and **Function Display** returns to **Test**.

Notice: *Basic protection functions are not affected during the performance of testing procedures.*

Testing will not be permitted to proceed if there is greater than 0.4 per unit of current flowing on a phase circuit or 0.2 per unit of current on a ground circuit. The maximum permitted current value can be determined by multiplying the appropriate per unit value (0.4 or 0.2) times the ampere rating of the installed rating plug.