

SIEMENS

Power Monitor™

Display and Monitoring Unit

**Instruction
Operation**

SG-4018

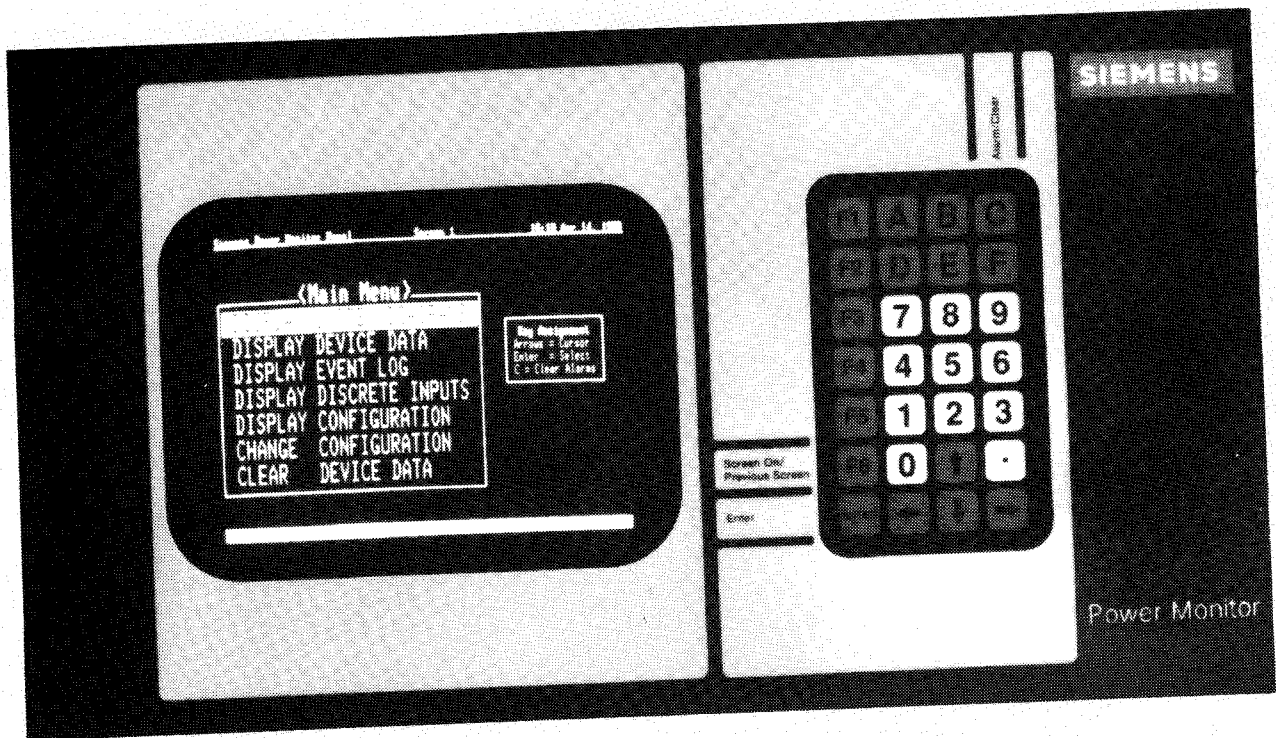


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Overview

The Siemens Power Monitor™ display and monitoring unit Version 2.11 uses microprocessor technology to provide real-time data displays, discrete input status displays, event logging, circuit protection and protective relaying for industrial AC power systems. The Siemens Power Monitor System consists of a Power Monitor display and monitoring unit connected by an industry standard single twisted-pair EIA RS 485 communications bus cable to as many as 32

microprocessor-controlled devices: 3600-ACM-S1 power meters, 3700-ACM-S1 power meters, 4700 power meters, and/or Static Trip IIIC overcurrent trip units (**Figure 1**). A Host Computer may be added to provide remote monitoring of a plant's electrical distribution system (**Figure 2**). This Host Computer accepts inputs directly from the Power Monitor. A packet-based communications protocol guarantees integrity of data displayed at the Power Monitor and Host Computer.

**Substation Communications Configuration
Typical Medium Voltage Application**

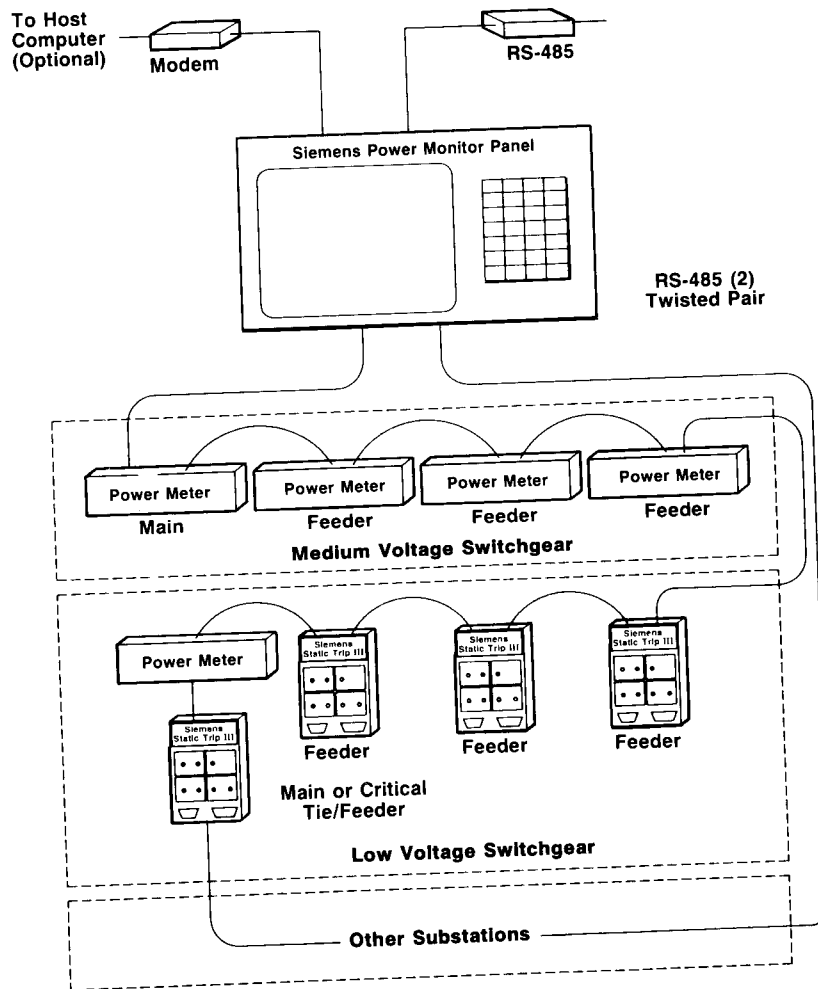


Figure 1. Siemens Power Monitor System.

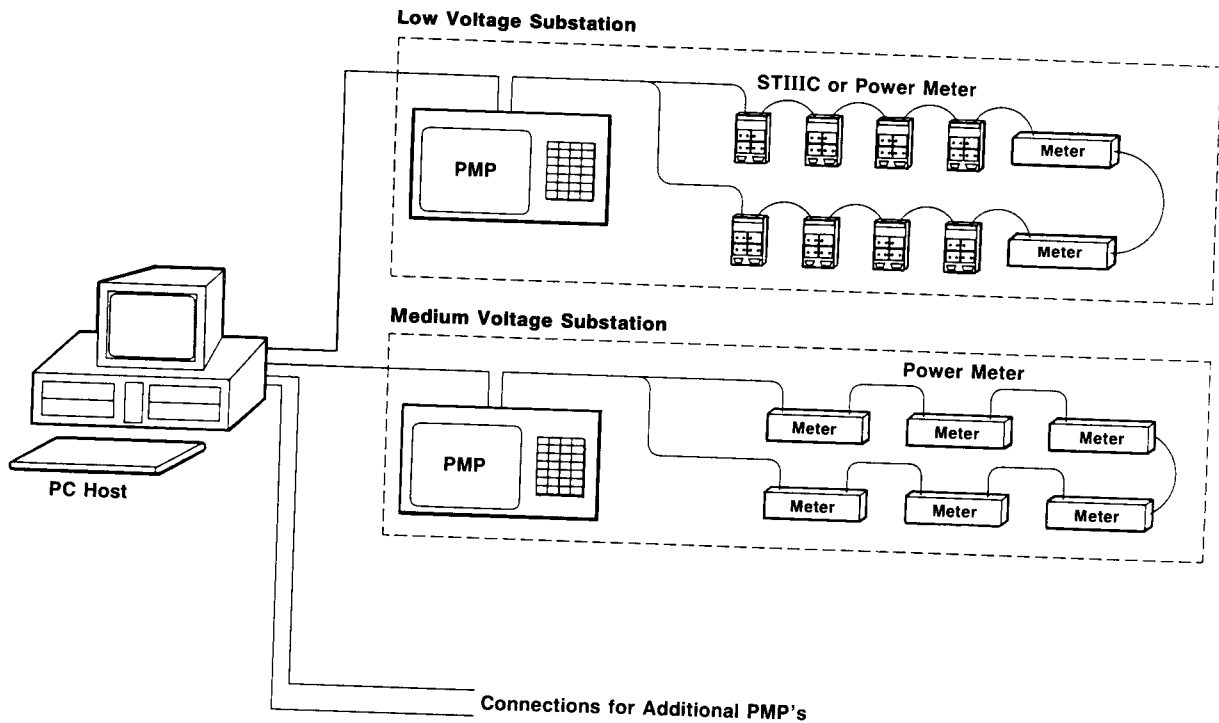


Figure 2. Host Computer.

The Power Monitor

The Power Monitor (Figure 3) is an 80286-based industrial computer that executes a supervisory program to communicate with the many devices it must monitor. Its graphics display and large sealed-membrane keypad facilitate data acquisition and programming efforts. The Power Monitor provides a variety of information display screens and user programmable features, and maintains a 64-entry event log in its nonvolatile memory. Screens include single-line diagrams of selected portions of the power network, large character displays of summary data, and tabular displays of detailed data, including minimum and maximum value tables, from the devices.

Via the Power Monitor the user can view data acquired from the devices. The user is also capable of configuring the Power Monitor to respond to data and events as needed by a particular installation. This configuration capability is password protected and is normally done at the factory before shipment. However, the Power Monitor and Device Configuration section provides detailed instructions on how to further personalize the system to the user's needs.

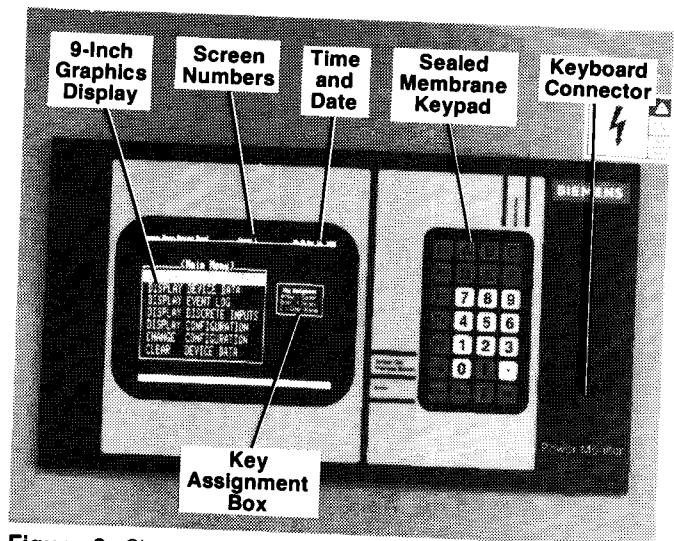


Figure 3. Siemens Power Monitor.

When the Power Monitor is powered up, it performs a momentary self-check function. Various messages and test patterns may be seen at this time. After the test patterns are completed, a "Powering up - Stand by", message will appear at the center of the Power Monitor screen until it finishes its self-check. The Main Menu screen will then be displayed.

At all times after the Power Monitor has completed its power-up self-test, and no matter which screen is displayed, it is polling the selected devices, thereby maintaining up-to-date data in its internal memory.

As data is received from each device, it is checked against configuration limits for detection of alarm conditions. When an alarm is detected (and if globally configured to do so), the event can be displayed on the bottom line of whatever screen is being viewed by the user. If enabled, the event is also logged to the event log and/or an audible alarm is sounded.

All screens which contain real-time data (such as phase current), regardless of which screen is being displayed, are updated approximately once per second by the Power Monitor. It is possible for the user to configure limits for selected real-time data (such as a high limit on phase current) on a device by device basis. In this way the user could be alerted to a phase current approaching a Long-Time Pickup situation early enough to make system adjustments before the Pickup actually occurs.

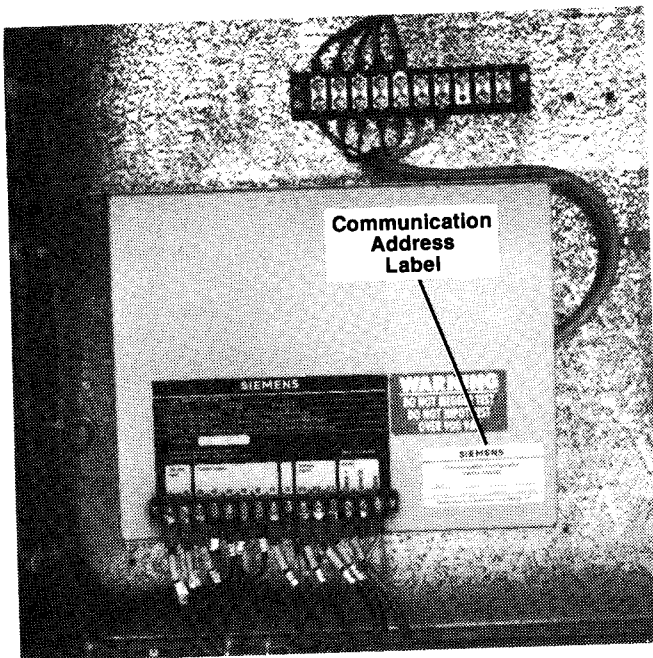


Figure 4. Power Meter.

The Power Monitor is normally located in an instrument compartment in a switchgear lineup, switchboard, or motor control center. A DOS-based version has also been adapted to operate on a dedicated IBM compatible PC. The functions of the Power Monitor is covered in the remaining guide.

Siemens Power Meters

Siemens Power Meters measure true RMS line-to-line voltage, RMS line-to-neutral voltage, RMS line currents, kVA, kW, kW Demand, kWhr, kVAR, kVARHr, power factor, and frequency. The power meters accept CT and PT inputs directly, thereby providing full power metering. The power meters also accept up to four discrete inputs (see Discrete Inputs section), providing further monitoring capabilities. Data from the power meters is transferred to the Power Monitor via the communications bus. (see **Figure 4**)

Power meters are available with or without their own local display. The digital display model must be located on the front plate of an instrument compartment. The non-display models can be located in either an instrument compartment or the same compartment as the Power Monitor.

The Siemens Static Trip III C

The Siemens Static Trip III C trip unit provides circuit protection, measures true RMS phase currents and ground current, and determines breaker and trip unit status. The Static Trip III C trip unit is mounted on the low voltage power circuit breaker and uses toroidal current sensors for self-powered overcurrent protection as well as load current measurements. (See **Figure 5**). Trip unit data is transferred to the Power Monitor via the communications bus.

Host Computer

Siemens can provide a PC Host computer including software and communication hardware to provide remote monitoring and data logging for load management of up to 32 Power Monitor's fitted with optional remote communication ports.

Alternatively, the optional remote communication port can be used to interface data available in the Power Monitor with a customer's own host computer via the Siemens PC Host Computer. Contact Siemens for additional information.

Communication Bus

An industry-standard shielded twisted pair EIA RS 485-communication bus is used to pass information between the

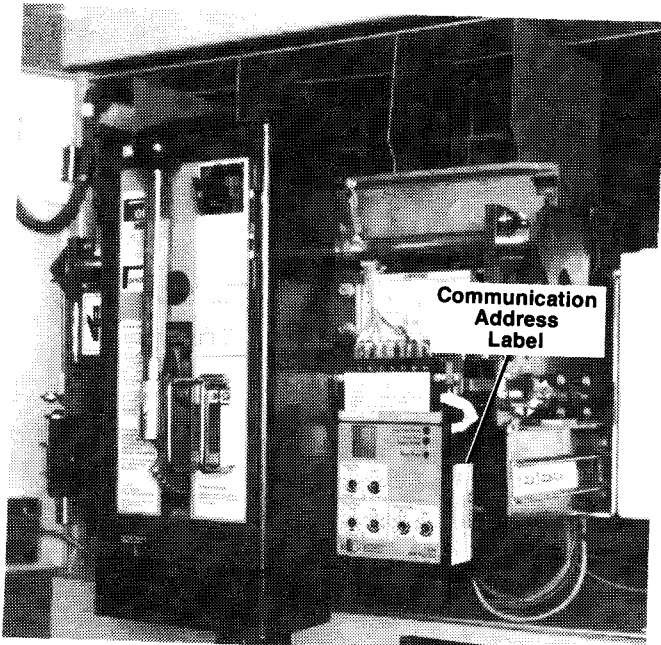


Figure 5. Static Trip III C.

Power Monitor and downstream devices. Its inherent electrical characteristics provide reliable data transmittal between devices and accommodates distances of up to 4000 feet without the need for repeaters.

The communication bus is normally formed by a closed loop daisy chain between devices at the Power Monitor level. This configuration prevents one open on the bus from disrupting communication between devices.

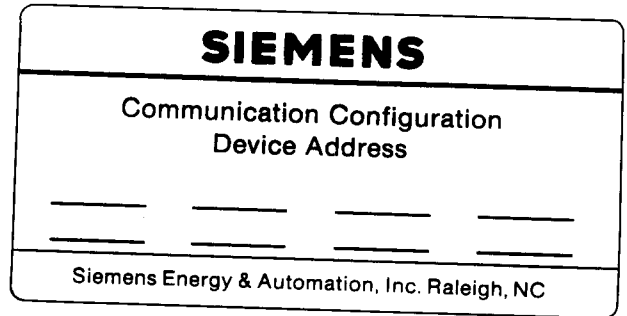


Figure 6. Communications Address Label.

Communication Protocol

Each device has a unique communication address programmed within its non-volatile memory and is recorded on the communication address label attached to the device (see **Figure 6**). (Duplicate device communication addresses may occur during routine field maintenance. When they do, the communication address can be reprogrammed using the steps outlined in Appendix B.) Each device has a valid range of communication addresses that are accepted by the Power Monitor.

The Power Monitor controls the activity on the communication bus. By issuing a series of "master requests", the Power Monitor can interrogate, or poll, every power meter and trip unit tied to the communication bus. The trip unit or meter recognizes its address in the "master request" and sends the requested data back to the Power Monitor. This "request data-send data" scenario is performed continuously on the communication bus. Device polling priority is programmed within the Power Monitor (see Power Monitor and Device Configuration section).

Features

Graphics Screen

An industrial graphics screen is used to display all information at the Power Monitor. Monochrome screens are standard, however, color screens are optionally available on some models.

A user configurable screen "blanking delay" is provided to help extend the life of the display.

Keypad

The sealed membrane keypad located on the Power Monitor allows the user to control and enter data into the devices connected on the communication bus. Both tactile and audible feedback are used to acknowledge each key press. The Power Monitor uses that pressed key to perform the task assigned to it. All screens contain a box labeled "Key Assignment" which lists all keys accepted and their functions (see Getting Started section).

Keyboard Connector

A covered keyboard connector on the lower right corner of the Power Monitor allows use of an IBM-compatible XT keyboard for setup purposes, where access to the entire upper and lower-case alphabet and other elements of the ASCII character set may be desirable. This feature is particularly useful for entering names during configuration since the Power Monitor keypad provides a limited key selection.

Configuration Storage

Non-volatile (EEPROM) memory is used to provide reliable storage of all critical Power Monitor configuration information. Loss of control power will not cause vital data to be lost. Batteries are not required to maintain this non-volatile memory.

Powering Up

The Power Monitor is powered up using the on/off switch located on the rear panel. When the Power Monitor is powered up, it performs a self-check lasting approximately fifteen seconds. As the screen warms up, the display will appear at some point through the check. Various messages and test patterns may be seen at this time. After the test patterns are gone, a "Powering up - Stand by" message will appear in the center of the Power Monitor screen until it finishes its self-check. Once completed, the Main menu screen will be displayed.

The Main Menu

The Main Menu (**Screen 1**) on the Power Monitor is the user's top level access to the features and functions of the Siemens Power Monitor. From this menu users have access to view system diagrams, view real-time and discrete data, access the event log, view and access configurations, and clear (reset) data.

The Main Menu is automatically accessed after the Power Monitor is powered-up and has completed its self-check. Returning to the Main Menu from lower level screens is easily directed via the "Key Assignment" box.

Key Assignments

As a help function, all screens list the single key assignments which may be used for that screen. These keys (usually function keys and arrow keys) are used for: selecting screens, configuring devices, clearing device data, returning to higher level menus, etc. Certain keys have consistent meanings through all key assignment boxes. These keys are:

C = Clear Alarms

F6 = Previous Screen/Screen On

ENTER = select item on cursor or enter keypad data

ARROWS = move cursor up, down, left, or right, and page forward or backward

Screen Numbers

Screen numbers are provided in the center of the top line of every screen. These screen numbers reflect a hierarchical numbering system and allow quick reference to the user's guide.

Selecting a Screen

All screens are accessible using the key assignments as described in Key Assignments. Typically, selecting a screen requires scrolling to a selection and pressing either ENTER or the appropriate function key. Returning to higher level screens (i.e. Main Menu from System Diagrams) only requires pressing F6.

Password

Password access to certain configuration screens is restricted to users with knowledge of the system password. Screens which are not restricted by a password may be accessed and viewed by anyone at any time. It is advised that this entire document be read before accessing any system configuration or clear device data screens.

NOTE

Password Restricted Screens Allow Alteration Of Power Monitor Configuration Parameters Or Clearing Of Information.

Displaying Data

Display System Diagram (Screen 1.1)

From the Main Menu (**Screen 1**), use the Up/Down arrow keys to select "Display System Diagrams".

System diagrams are one-line representations of your electrical system with symbols representing the various components. Large boxes are used to represent main breakers while small boxes are used to represent feeder and tie breakers. Bold lines represent buses.

Up to 16 system diagrams may be configured. Single main circuit breaker screens may have up to sixteen feeders and one optional tie; double main circuit breaker screens may have up to twenty feeders and one optional tie, each main having up to ten feeders.

The display attribute (normal, bold, blinking, etc.) of a box indicates whether there is an active alarm on that part of the power system. See Alarms and Events section for details.

For each main equipped with a power meter, the following are displayed when the breaker is closed:

- Breaker name
- Volts (average L-L or L-N)
- Amperes (average for three phases)
- Kilowatts (KW)
- Kilovolt-amperes (KVA)
- Power factor (PF)

If the main breaker is opened, "OPEN" will appear. Voltage will also be displayed for power meters connected to the source side of the main circuit breaker.

Normally the power meters are wired to line voltage ahead of the main breaker. Check the wiring diagram for the actual connection.

For each feeder and the tie breaker (and mains with only trip devices), the breaker name and the average amperes are displayed, if the breaker is closed. Otherwise "OPEN" is displayed.

Screen-Switching

Normally, the system cycles between system diagram screens, displaying each for a user-configurable number of seconds. Press ENTER to stop the cycling and pause on the current screen. Press the up or down arrow keys to move forward or backward through the scan screens or press ENTER again to restart the cycling.

Press F6 to return to the Main Menu (**Screen 1**).

Display Device Data Screens

Accessing the Data Screens

The Siemens Power Monitor displays power system data originating from two types of devices: power meters and trip units. To view data from any of these devices, select "Display Device Data" on the Main Menu (**Screen 1**). This will select the Display Device Data Menu (**Screen 1.2**), showing a list of breakers with their associated trip units and meters currently configured. Use the Up/Down and Left/Right arrow keys to position the bar cursor on any power meter or trip unit and press F1 to view real-time data values in tabular format; F2 to view real-time summary data in large character format; or F3 to view min/max data in tabular format. On all of these screens, the rate at which new data is updated depends on the number of devices and their polling priorities. (See Power Monitor and Device configuration section).

Detail Screens

Power Meter Detail Screens (Screen 1.2.4)

From the Display Device Data Menu (**Screen 1.2**) use the Up/Down and Left/Right arrow keys to move the cursor over a selected power meter. Press F1 to advance to the power meter detail screen (**Screen 1.2.4**).

Power meters' detail screens display (in tabular form) the current real-time value of the following data items, all pertaining to the main, feeder, or tie breaker monitored by that power meter:

- Breaker name for power meter
- Volts on each phase (l-l or l-n)
- Average volts over three phases (l-l or l-n)
- Amperes on each phase
- Average amperes over three phases
- Kilowatts (KW)
- Kilowatt demand (KWD)
- Kilovolt-amperes (KVA)
- Kilovars (KVAR)
- Power Factor (PF)
- Frequency
- Kilowatt hours (KWHR)

- Kilovar hours (KVARHR)

Pressing F6 will return to the Display Device Data Menu (**Screen 1.2**).

Trip Unit Detail Screens (Screen 1.2.1)

From the Display Device Data Menu (**Screen 1.2**) use the Up/Down and Left/Right arrow keys to move the cursor over a selected trip unit. Press F1 to advance to the trip unit detail screen (**Screen 1.2.1**).

The trip unit's detail screen displays (in tabular form) the latest value, or in the case of a "trip", the trip log, of the following data items, all pertaining to the main, feeder, or tie breaker monitored by that trip unit:

- Breaker name for trip unit
- Amperes on each phase
- Ground amperes
- Ampere percent of capacity
- Pickup flags (Long Time, Short Time/Ground, Current Unbalance)
- Watchdog status
- Breaker status

In normal operation, this screen displays the real-time values of each item, whether the breaker is "open" or "closed". After a tripping event, however, the data shown on this screen is the trip log data where currents are those measured just before tripping, the pickup flags active just before tripping, the actual cause of tripping (trip target) and the time and date of the trip event. In this way, the detail data screen represents the latest useful information about that breaker. The screen will automatically reset itself to the real-time mode when a tripped breaker is reclosed.

Besides the normal F6 key for returning to the previous screen, F4 is defined as "Clear Targets". Pressing this key and entering the security password will clear any and all targets shown on the Power Monitor and the Static Trip IIC trip unit's LCD Target Display without having to actually press the reset button located physically on the Static Trip IIC trip unit. There should be no concern for losing this information, however, since it will already have been stored in non-volatile memory of the Power Monitor's event log.

Pressing F6 will return to the Display Device Data Menu (**Screen 1.2**).

Large-Character Screens

Large-Character Power Meter Screens (Screen 1.2.5)

From the Display Device Data Menu (**Screen 1.2**) use the Up/Down and Left/Right arrow keys to move the cursor over a selected power meter. Press F2 to advance to the power meter large character screen (**Screen 1.2.5**).

The large-character screen for a power meter shows the following present real-time values of summary data for the main, feeder, or tie breaker monitored by that power meter:

- Breaker name for power meter
- Volts (average over three phases)
- Amperes (average over three phases)
- Kilowatts (KW)
- Kilovolt-amperes (KVA)

Pressing F6 will return to the Display Device Data Menu (**Screen 1.2**).

Large-Character Trip Unit Screens (Screen 1.2.2)

From the Display Device Data Menu (**Screen 1.2**) use the Up/Down and Left/Right arrow keys to move the cursor over a selected trip unit. Press F2 to advance to the trip unit large character screen (**Screen 1.2.2**).

The large-character screen for a trip unit shows present real-time values of summary data for the main, feeder, or tie breaker monitored by that trip unit:

- Breaker name for trip unit
- Amperes on all three phases
- Breaker status

Pressing F6 will return to the Display Device Data Menu (**Screen 1.2**).

Displaying Data

Min/Max screens

Power Meter Min/Max Screens (Screen 1.2.6)

From the Display Device Data Menu (**Screen 1.2**) use the Up/Down and Left/Right arrow keys to move the cursor over a selected power meter. Press F3 to advance to the power meter min/max screen (**Screen 1.2.6**).

A power meter min/max screen displays minimum and maximum values for the following data items, together with the times when the minimums and maximums occurred:

- Breaker name for power meter
- Volts on each phase
- Average volts over three phases
- Amperes on each phase
- Average amperes over three phases
- Kilowatts (KW)
- Kilowatt demand (KWD)
- Kilovolt-amperes (KVA)
- Kilovars (KVAR)
- Power Factor (PF)
- Frequency

The time stamp is obtained from the power meter, not the time of polling.

Pressing F6 will return to the Display Device Data Menu (**Screen 1.2**).

Trip Unit Min/Max Screens (Screen 1.2.3).

From the Display Device Data Menu (**Screen 1.2**) use the Up/Down and Left/Right arrow keys to move the cursor over a selected trip unit. Press F3 to advance to the trip unit min/max screen (**Screen 1.2.3**).

A trip unit min/max screen displays minimum and maximum values for the following data items, together with the times when the minimums and maximums occurred:

- Breaker name for trip unit
- Amperes on each phase
- Ground amperes

The time stamp is obtained from the trip unit and not from the time of polling.

Pressing F6 will return to the Display Device Data Menu (**Screen 1.2**).

What Discrete Inputs Are

Discrete inputs are functions of auxiliary switches, dry-type contacts, analog pulse counters, or the like, which are monitored by the power meter and whose status is transferred from the power meter to the Power Monitor during data polling.

Dual-state inputs exist in one of two states, on or off, however, the Power Monitor allows the names and states to be configured to reflect real-situations, such as high or low temperature levels.

A second type of discrete input may be configured as a counter. The counter increments by the programmed scale factor each time the input is excited. For example, utility KWHR pulses can be monitored as a discrete input.

Configuring discrete inputs is covered in Power Monitor and Device Configuration section-Adding or Modifying Discrete Inputs.

Display Discrete Inputs

The Power Monitor displays the discrete inputs in an easy to read format.

From the Main Menu (**Screen 1**) use the Up/Down arrow keys to select "Display Discrete Inputs" and press ENTER to advance to the Discrete Inputs Screen (**Screen 1.4**).

The Discrete Inputs screen (**Screen 1.4**) lists all discrete inputs configured at the Power Monitor by number, name and status. Names may be configured with up to twenty characters and each state may be defined with up to ten characters. Counters will have their accumulated value displayed and state inputs will have their status displayed.

The discrete input screen will scroll automatically (at a configurable rate). Pressing ENTER will stop the screens from scrolling. Pressing ENTER again will resume the automatic scrolling. The arrow keys may be used to page ahead or back a screen.

Pressing F6 will from the Discrete Inputs screen (**Screen 1.4**) will return to the Main Menu (**Screen 1**).

Types of Alarms

The Power Monitor is constantly monitoring data from the devices and the status of the devices connected to the communication bus. When the Power Monitor detects a change in the status within a device or the system, or when data exceeds preset configurable limits (see Power Monitor and Device Configuration section), an Alarm has occurred.

Alarms may be classified as value alarms, state change alarms, or error alarms. A value alarm occurs when the value of a data item exceeds configured limits for more than the designated amount of time. Value alarms can be configured, enabled and disabled by the user via the configuration screens. A state change alarm occurs when a status changes, such as a trip unit going into pickup. State change alarms are always enabled and those which relate to the system status are always logged into the Event Log. However, the user can decide if state alarms related to changes in device status should be logged to the event log via the configuration screens. Error alarms occur as a result of system abnormalities. Error alarms are also always logged into the Event Log. Appendix C includes a comprehensive list of all possible alarms.

Life Cycle of an Alarm

An alarm can be in any one of four states: Asserted (alarm state and not acknowledged), acknowledged (alarm state and acknowledged), resettable (alarm state back to normal but not acknowledged), and not alarmed (no alarm state). Transitions between these states are governed by a combination of events and user actions.

For alarms that have been designated as logable (via the configuration screens), state transitions pertaining to that type of alarm are recorded in the Event Log.

Alarm Asserted

When an alarm event is detected, the corresponding alarm is asserted and a message describing the alarm can be set to appear at the bottom of the screen, if so configured (see Power Monitor and Device Configuration section). If several alarms have occurred back to back, then the latest alarm will be displayed. (The Event Log can be accessed to view the previous alarms which led to the one being displayed.)

If a device screen or scan screen is actively displayed, the affected breaker will be shown in flashing boldface. If the user has configured that alarm to "Log only", the message that appears on the bottom line of the screen is also added to the event log.

If the user has configured that alarm to "Sound and log", a tone is sounded on the Power Monitor each time data from the affected unit is detected to be asserted, and an entry is added to the event log.

The alarm has occurred and is now considered to be asserted.

Alarm Acknowledged

From any (non-discrete input) screen, press the "Clear Alarm" (C) to acknowledge all value alarms that have occurred. From the Discrete Inputs Screen (**Screen 1.4**) only, press "Clear Alarm" (C) to acknowledge all discrete input alarms.

In any device menu or scan screen the unit will change from flashing boldface to plain boldface to indicate that there are acknowledged alarms. However, the alarm is not resettable as long as the data value falls outside of set limits or the detected status which caused the alarm remains in the alarm state. Discrete alarms must be acknowledged within the discrete status screen.

Alarm Resettable

When the value (such as voltage) or change in status triggering the alarm returns within bounds, an acknowledged alarm returns to normal display.

If the value or change in status returns within bound before the alarm is acknowledged, the audible alarm will silence, but the device will continue to be displayed in bold flashing until the alarm is reset by pressing "C".

Not Alarmed

When no alarms are asserted, the Power Monitor is considered "not alarmed."

Event Log (Screen 1.3)

From the Main Menu (**Screen 1**) use the Up/Down keys to select "Display Event Log" and press ENTER to display the Event Log (**Screen 1.3**).

The event log is a reverse chronological listing of the 64 most recent events. The top event is the most recent and the bottom one is the oldest. This

log is nonvolatile so the Power Monitor can be turned off and on and the events will be maintained within the log.

Event Messages

The last 64 messages describing logable events are recorded in the Event Log. Each value alarm assertion message contains the following information:

- Breaker name
- Device type
- Data item involved
- Data value causing the alarm
- Type of problem
- Time and date of alarm assertion

The latest event logged is the first entry in the event log and is numbered 1. The older messages are shifted down into the log as new events occur.

Using the Event Log

The Event Screen displays sixteen lines of the Event Log at the bottom of the screen. You can scroll up and down or page to page in the Event Log by using the arrow keys. To clear the entire Event Log, press F4. To delete one entry, highlight it with the cursor and press F5. Before allowing you to make any Event Log deletion, the system will require that you enter the security password. Subsequent deletions will not require entry of the password again as long as you remain at the event log screen.

Pressing F6 will return to the Main Menu
(**Screen 1**).

Configuration Overview

The configuration of the Power Monitor and Devices is divided into three major groups. These are configuring a breaker, setting up the System scan (single line) screens, and setting the global parameters.

Breaker configuration affects the power meters, trip units and alarm limits. For each breaker in the system the Power Monitor must be told what devices (trip unit and/or power meters) are associated with it for the Power Monitor to be able to poll data for that breaker. Alarm limits can be set for each breaker in the system. These alarm limits affect how the Power Monitor handles events. Detailed information is given in the sections following.

The System scan (single line) screens show an overview of the breakers and their associated data for all of the breakers on one or several screens. These screens are configurable by the user. Detailed information is given in the sections following.

Global parameters enable the user to set the password, control the system screen scan rate, control screen blanking time, set the time and date (if necessary), set communication baud rate, and display messages on the bottom line.

NOTE

When entering data for certain fields (such as "Name") during configuration, a PC-XT keyboard may be attached to the Power Monitor for access to the entire alphabet.

Displaying Configuration

To display preassigned configurations select "Display Configuration" on the Main Menu (**Screen 1**) and press ENTER. The Display Configuration Menu (**Screen 1.5**) permits viewing all preassigned configurations.

NOTE

The "Display Configuration" option on the Main Menu is similar to the "Change Configuration" option, except that the password is not required and no changes to the configuration are allowed.

Changing Configuration

To configure a newly connected device or to change the configuration of an already installed one, select "Change Configuration" from the Main Menu (**Screen 1**). After entering the password (**Screen 1.8**), you will advance to the Change Configuration Menu. Proceed to the appropriate sections below.

Breaker configuration

Select "Breaker Configuration" from the Change Configuration Menu (**Screen 1.6**). The Breaker Configuration Menu (**Screen 1.6.1**) appears and displays a list of currently configured breakers. Each breaker is configured with its type, name, and the devices (trip unit or power meter) associated with a specific breaker. As indicated by the Key Assignment box you can:

- Access Alarm Parameters
- Access Protective Settings
- Access Discrete Inputs
- Add a breaker/device
- Modify a breaker
- Return to Menu

Adding or Modifying a breaker

From the Breaker Configuration Menu (**Screen 1.6.1**), press F4 to add a breaker; or highlight an existing breaker with the bar cursor and press F5 to modify its configuration. In either case, the breaker configuration screen (**Screen 1.6.1.4**) is displayed. As seen in the key assignment box you can:

- Configure Unit
- Test Unit
- Erase Breaker
- Reject Edits
- Edit Field
- Save Changes and Return

The first two fields shown on the breaker configuration screen are:

- Breaker Type
- Breaker NName

Each breaker consists of a Static Trip IIC trip unit and/or a 3600-ACM-S1 or 4700 power meter. The following fields for each are displayed:

- Trip Unit
 - Address
 - Current Sensor Rating
 - Ground Sensor Rating
 - Polling priority
- Power Meter
 - Serial number (Address)
 - Volt scale
 - Volt mode
 - Amps scale
 - Demand period length
 - Number of periods
 - Polling priority

If a breaker is being added, all of the fields will be blank except for breaker type, which defaults to "feeder." When a breaker is being added or modified, use the arrow keys to highlight the field with the cursor, then press F5 to edit the field. Type the entry and press ENTER. Begin with breaker type and breaker name if a new breaker is being added or renamed. Then enter data for all the fields for the trip unit and/or power meter, depending upon which device(s) are associated with the breaker. Suggested entries for all fields are as follows:

Breaker Type

Scroll to "Breaker Type" and press F5 to edit the field. Use the arrow keys to choose one of the corresponding types of breakers:

- Main breaker
- Tie breaker
- Feeder breaker

Breaker Name

A six character alphanumeric name is allowed for each breaker. This name will appear on the display device menu and system scan screens.

Static Trip IIC Trip Unit

Address

The address of the trip unit must be set from 1 thru 224. This MUST be the address of the actual trip unit used on the selected breaker and is recorded on a communication address label on the right hand side of the trip unit.

NOTE

Each trip unit connected to a particular Power Monitor MUST have a unique address. Failure to do so will result in communication errors (which are logged in the event log) for all devices which have the address conflicts. Such cases are covered in Appendix B.

Current Sensor

This is the rating of the current sensor used in the breaker. Example: An RL-800 breaker normally will have an 800/5 Amp current sensor. In this case "800" is entered for the current sensor. If a different size current sensor is used (say 600/5), then "600" would be entered for the current sensor. These values ensure that the current sensor data acquired from the trip unit by the Power Monitor is properly scaled by the Power Monitor before display of screen data.

Ground Sensor

This is the ground sensor rating of the breaker which is normally the same as the current sensor rating except on 3200A and 4000A circuit breaker or when direct ground sensors are used. Check the RL breaker frame or breaker cubicle for the ground sensor rating.

Polling Priority

Normally set to 1. Use the arrow keys to change the priority. A higher number will be polled less often and a lower number will be polled more often. Basically, devices set to 1 will be polled every time the Power Monitor goes thru all the devices connected to the communications loop, while devices set to 9 will only be polled after the Power Monitor has cycled through all devices nine times.

If set to Ignore, the device WILL NOT BE POLLED. This is useful for taking the device off-line for service and will avoid communication "No Response" alarms from occurring.

Power Meter

Serial Number

The serial number shown on the 3600-ACM-S1, 3700, or 4700 power meter. Note that the serial number is preceded by a letter, this letter is NOT included here and only the number following the letter is to be entered for the serial number on the breaker configuration screen.

Volts Scale

The voltage rating of the bus to which the power meter is connected. Example: 120, 480, 13800, etc. See the power meter user's guide for more information.

Volts Mode

One of the following should be entered:

- 0 - display Line to Neutral Voltage Wye System
- 1 - display Line to Line Voltage Wye System
- 6 - display Line to Line Voltage Delta System
- 3 - test mode - displays FIXED values for voltage and current

Amp Scale

This is the nominal full scale rating of the current transformers connected to the power meter Example: 800 would be entered for a current transformer rating of 800/5 Amp. These values ensure that the data acquired from the power meter by the Power Monitor is properly scaled by the Power Monitor before display of screen data.

Demand Period Length

This is used in combination with number of periods (below) for establishing the method and time period for calculating kW Demand. Set between 1 and 120 minutes.

See the power meter user's guide for additional information.

Number of Periods

This is used in combination with period length (above). It signifies the number of demand periods used to calculate kW Demand. Set between 1 and 15.

NOTE

The demand period length and number of periods provide flexibility to approximate utility billing calculation. For example, the start of the utility demand period may not be known but the period length is known. In this case, the "sliding window" method for calculating kW Demand can provide a close approximation. If the utility period length were 30 minutes, set period length to 2 minutes and number of periods to 15. The result will be a kW Demand calculation that is updated every 2 minutes but includes the last 30 minutes of information.

NOTE

Additional utility billing may be performed by counting utility pulses via the discrete input counter.

Polling Priority

Normally set to 1. See polling priority for trip unit, above.

Configure Unit

The data has been entered into the Power Monitor according to the directions immediately above. When all information is entered for a device, each device must be configured. The configuration information is in the Power Monitor but it will not be sent to a device until the "F1 - Configure Unit" key is pressed. This must be done for each trip unit and each power meter. Position the cursor on one of the fields of the device. Press F1 to transmit all setup parameters to that device and automatically test the device. A response message at the bottom of the screen reports whether the test passed or not.

The response message "NO VALID RESPONSE MESSAGE" indicates the device did not respond to the Power Monitor's command to configure it. The most likely causes for this are:

- the wrong address or serial number has been entered
- the device does not have power

- the device is not connected to the communications bus.

The message "CONFIGURATION DISCREPANCY" indicates the device's configuration doesn't match that indicated on the Power Monitor screen - try reconfiguring the unit by pressing F1 again.

Press F2 to test the unit. Normally the message "Test passed" will appear, indicating the device is configured and working properly.

Polling of the unit commences when a polling priority is assigned for it.

Press "F6 - Return/Save" to record the entries and return to the Breaker Configuration Menu. Pressing this key records the configuration into the Power Monitor's non-volatile memory section which is immune to power loss.

You may press F4 to reject changes made and exit to the Breaker Configuration Menu. This means any data you have entered at this session of this breaker configuration screen will be discarded. If you were adding a breaker, it will delete that breaker. If you were modifying a breaker, the configuration data which was present before modification began will be restored.

NOTE

Assuming you have already pressed F1 to configure a device and then press F4 to reject changes, only the Power Monitor will be affected. The device will still retain the configuration just sent to it via the F1 command. To restore the previous old configuration which may have existed in the device, reenter the breaker configuration screen and press F1 again to send the old configuration data back to the device.

If at any time you are not sure if the data shown on the Power Monitor screen matches the configuration data in the device, just press "F2 - Test Unit" and look for a "configuration discrepancy" or "test passed" message.

Deleting a Breaker

From the Breaker Configuration Menu (**Screen 1.6.1**) place the cursor over the trip unit or power meter of the breaker you intend to delete. Press F5 to proceed to the Breaker

Configuration Menu. When deleting a breaker, both the information for the trip unit and the power meter will be deleted regardless of where the cursor was positioned. Press F3. The message "THE INFORMATION SHOWN HERE WILL BE ERASED IF YOU PRESS F1" appears. Press F1 to actually delete the breaker, or press F6 to cancel the request.

Finding a Trip Unit's Address

If the situation arises that a trip unit's address is unknown, such as while adding a new breaker or while rearranging breakers, proceed to the breaker configuration screen for that breaker (**Screen 1.6.1.4**). Use the arrow keys to highlight the unknown trip unit address and press F (Find Address). The Power Monitor will interrogate only trip unit addresses 1 thru 224 which are not already configured. The Power Monitor will then request a response from each address not already configured in the Power Monitor's memory, starting at the lowest available number and proceeding until a response is received. The first address that responds is then considered to be the new trip unit, and this address number is assigned to the breaker being configured. It is therefore important that only one new trip unit is added to the system at a time. The Power Monitor will continue requesting responses at each sequential address until the highest possible address number of 224 is reached. The message "No new devices found" will then be displayed.

The Find Address function is covered in more detail in "Field Situations"

Reprogramming a Device

As part of breaker maintenance, it may be required to edit or reprogram a device's address. This can be accomplished by F5-Edit Field or A=Program Address, respectively. The following two sections describe these functions. However, it is advisable to refer to Appendix B "Field Scenarios" for specific uses of these functions.

The edit function is to be used only in cases in which the device (trip unit or power meter) configured to the listed breaker is being replaced. Editing the address changes the address at the Power Monitor only. It does not change the address internal to the device.

In the Breaker Configuration screen (**Screen 1.6.1.4**) scroll to the device address. Press F5 and key in the new address. Press ENTER. The Power Monitor now reflects the address of the new device (trip unit or power meter). Press F1 to configure the device, then F2 to test it.

The program address function is used only when it is required to change the address within the device (trip unit or power meter). This is usually not required and should be used only to avoid duplicate addresses.

Proceed to the Breaker Configuration screen (**Screen 1.6.1.4**) and scroll to the device address. Press A (Program Address), key in the new address, and press ENTER. This will result in the reprogramming of the device address within the device's internal memory. (Note: Reprogramming of the device address should be restricted. Whenever this function is used the address label on the trip unit or power meter should be changed to reflect the new device address. See Appendix B for examples.)

Adding or Modifying Discrete Inputs

From the Main Menu (**Screen 1**) select "Change Configuration" and enter the password (**Screen 1.8**). Once in the Change Configuration Menu (**Screen 1.6**) select "Breaker Configuration". This will bring you to the Breaker Configuration Menu (**Screen 1.6.1**). Use the cursor bar to highlight and select the power meter to which the discrete inputs are attached. Press F3 to proceed to the Discrete Input Configuration (**Screen 1.6.1.3**).

The Discrete Input Configuration screen lists Breaker Name, Counter Name, Counter Scale Factor, and 2-State Inputs, by Name and Number, State Messages, Alarm State, Log, and Sound and Log.

Counter Inputs

The resettable counters increment each time their input contact is closed, for example, each time a breaker trips (when bell alarm contacts are used) or each time a utility meter sends a pulse. A scale factor can also be assigned so that the number displayed at the Power Monitor has meaning, such as for kWhr pulses. Only one counter can be configured per power meter and is associated with discrete input 1.

Counter Name

The counter name accepts up to 20 alphanumeric characters. Scroll to "Name" and press F5. Input the counter name and press ENTER. The units (such as "kWhr") that are represented by the counter should be included in the 20 character name to aid the operator.

Scale Factor

The scale factor can be set as any integer between 0.0001 and 99999.9999. Scroll to Scale Factor and press F5. Input the scale factor and press ENTER.

Discrete (2-state) Inputs

Four discrete (2-state) inputs can be configured per power meter. The state inputs can be in one of two states: on or off. State messages can be assigned to eliminate deciphering of the two states. Alarms can be set for all, none, or specific changes of state. The change of state can also be logged.

Name

Discrete input names can be configured up to 20 characters. Scroll to the device name and press F5. Enter the alphanumeric name and press ENTER.

State Messages

Both the "on" and "off" state messages are configured in the same manner. Scroll to a state message and press F5. Enter the state message (up to 10 alphanumeric characters) and press ENTER.

Alarm State

Logging and/or alarming will occur as specified. The alarm state may be either: on, off, or change. "On" indicates that the alarm will occur when the state is on. "Off" indicates that the alarm will occur when the state is off. "Change" indicates that the alarm will occur when the state changes from either off to on or on to off. To set the alarm state, scroll to the alarm state and press F5. Use the arrow keys to choose either on, off, or change and press ENTER.

"Log only" or "Sound and log" may be set to Y or N. Scroll to "Log only" or "Sound and log" and press F5. Use the arrow keys to choose either Y or N and press ENTER.

Pressing F3 will erase an entire line.

Pressing F4 will reject all changes made during the session (i.e. before saving and returning to Breaker Configuration Menu.)

Pressing F6 will save all changes and return to the Breaker Configuration Menu.

Setting Alarm Limits

Accessing Alarm Limits

To set or modify alarm limits for a breaker, select "Change Configuration" from the Main Menu. At this point you are

asked for a password. Key in the security password and press ENTER to reach the Change Configuration Menu (**Screen 1.6**). Select "Breaker Configuration" to get into the Breaker Configuration Menu (**Screen 1.6.1**). Now position the bar cursor on a breaker and, as indicated in the Key Assignment Box, press F1 to access the Alarm Limits Screen for that breaker.

For each breaker, there are programmable fields for the alarm limits of a trip unit and a power meter. If the device is configured on this breaker, its alarm limit values may be modified. Use the Up/Down and Left/Right arrow keys to place the cursor on the field to be modified. Press F5, enter value, and then press ENTER for the Power Monitor to save the value. Some fields aren't available for modification (for instance low limit for pickup), although the cursor may be positioned on them. In such cases pressing F5 will not permit a value to be entered.

If limits are set and the global parameter for message display are set to Y, a message will be displayed on the bottom line of all Power Monitor screens if the data for that item falls outside of the limits for the specified time (seconds). In addition, the message will be logged into the event log if the "Log only" or "Sound and log" field is Y. An alarm will be sounded only if the "Sound and Log" field is Y.

Items with no limits, such as pickup, will always display a message when its state changes (such as from inactive to active and then back again). The only options for state change alarms are whether to "Log only" or to "Sound and log" the alarmed event.

Trip Unit Alarm Limits

For a trip unit, upper and lower limits, time (seconds), "Log only" and "Sound and log" can be specified for the following data items as indicated:

Amps

This is for the breaker's phase amps as measured by the trip unit. Low and High limits are configurable in line amps. The event will occur when the condition exists on any phase for the specified time in seconds (set between 0 and 32767). "Log only" and "Sound and log" are configurable.

Ground Amps

This is for the breaker's ground amps as measured by the trip unit. Low and High limits are configurable in amps. The event will occur when the condition exists on any phase for the specified time in seconds. "Log only" and "Sound and log" are configurable.

Amp % Capacity

Amps % capacity is defined as the maximum current on a phase divided by the current sensor rating. The event will occur when the value falls outside of the high or low value for the specified time. "Log only" and "Sound and log" are configurable.

Pickup

A programmable alarm generated when a longtime, short time/ground pickup or current unbalance goes active or inactive. "Log only" and "Sound and log" are configurable.

Trip

An alarm is always generated when a trip occurs. All trips are logged with the time of trip and the current values at the time of trip.

Watchdog

An alarm is always generated when the trip unit's watchdog target goes active (fail) or inactive (pass). All watchdog state changes are logged. This indicated functionality or failure of the trip unit.

Brkr Status

A programmable alarm and logging event is generated when breaker status changes from open to close or close to open.

Power Meter Alarm Limits

For a power meter, upper and lower limits, time (seconds), "Log Only" and "Sound and Log" can be specified for the following data items as indicated:

The Power Monitor permits configuring alarm limits in excess of power meter's capacity. Consult the power meter's user's manual before setting alarm limits.

Volts

This is for the line voltage as measured by the power meter. Low and High limits are configurable in phase volts from 0 thru 32767. The alarm will occur when the condition exists on any phase for the specified time in seconds. "Log only" and "Sound and log" are configurable.

Amperes

This is for the phase amps as measured by the power meter. Low and High limits are configurable from 0 thru 999999. The alarm will occur when the condition exists for the specified time in seconds. "Log only" and "Sound and log" are configurable.

KVA

This is calculated by the power meter. Low and High limits are configurable from 0 thru 32767. The alarm will occur when the condition exists for the specified time in seconds. "Log only" and "Sound and log" are configurable.

KW

This is calculated by the power meter. Low and High limits are configurable from 0 thru 32767. The alarm will occur when the condition exists for the specified time in seconds. "Log only" and "Sound and log" are configurable.

KVAR

This is calculated by the power meter. Low and High limits are configurable from 0 thru 32767. The alarm will occur when the condition exists for the specified time in seconds. "Log only" and "Sound and log" are configurable.

Power Factor

This is measured by the power meter. Low and High limits are configurable from 0 thru 100. The alarm will occur when the condition exists for the specified time in seconds. "Log only" and "Sound and log" are configurable.

Frequency

This is measured by the power meter. Low and High limits are configurable from 0 thru 999.9. The alarm will occur when the condition exists for the specified time in seconds. "Log only" and "Sound and log" are configurable.

The frequency alarm limits are special in that they may be entered as one to three digits, a decimal point, and a digit. No other alarm limits will accept a decimal point.

Kilowatt Demand

This is measured by the power meter. Low and High limits are configurable from 0 thru 32767. The alarm will occur when the condition exists for the specified time in seconds. "Log only" and "Sound and log" are configurable.

Volts Unbalance

This is calculated by the Power Monitor. Low and High limits are configurable from 0 thru 100 percent. The alarm will occur when the condition exists for the specified time in seconds. "Log only" and "Sound and log" are configurable.

Amperes Unbalance

This is calculated by the Power Monitor. Low and High limits are configurable from 0 thru 100 percent. The alarm will occur when the condition exists for the specified time in

seconds. "Log only" and "Sound and log" are configurable.

Leaving the Alarm Limits Screen

Pressing F6 will save all alarm limits and return to the Breaker Configuration Menu (**Screen 1.6.1**)

Setting Protective Functions

Amps Percent Unbalance

This is a PROTECTIVE FUNCTION configured at the Power Monitor but performed internal to the trip unit. The values entered for this item are sent to the trip unit. THE trip unit MUST BE CORRECTLY CONFIGURED ON LINE FOR THESE VALUES TO BE ACCEPTED. High, Seconds and Trip are the only fields configurable.

From the Breaker Configuration Menu (**Screen 1.6.1**) scroll to the selected trip unit and press F2.

This function is operative when the trip unit detects that the phase currents are unbalanced according to the % value in the High field. Unbalance is expressed in percent (though the percent symbol is not entered). All three phase currents are averaged. If any one phase current divided by the average is greater than the percent setting in High, then an unbalance condition occurs. Phase currents less than 5% of the current sensor rating are not used. Valid values for High are 5% to 50% (5 to 50).

When an unbalance condition occurs, the trip unit starts timing. If the unbalance condition continuously exists for a time longer than the specified time in seconds, the trip unit will TRIP THE BREAKER, if the Trip field has been set to "Y" on the alarm limits screen. Valid values for seconds are 1 to 15 seconds.

After setting the protective settings, press F1 to configure the unit and then press F2 to test the unit.

If an unbalance condition returns to normal while the trip unit is timing out, then the phase unbalance timer in the trip unit is reset. A new unbalance condition will restart the timer from zero.

Defining System Line Diagram Screens

To define a new line diagram screen or change an old one, select "Change Configuration" from the Main Menu (**Screen 1**). After entering the password, you should see the Change Configuration Menu (**Screen 1.6**). Now select

"System Diagrams," and the System Screens (**Screen 1.6.2**) is displayed, featuring a list of all the system line diagram screens which are currently defined.

For each screen in the list, the following information is provided:

- Screen number
- Screen name
- Number of mains
- Number of feeders on first bus
- Number of feeders on second bus
- Tie breaker present

As indicated by the "Key Assignment" you may:

- Add a new screen
- Display a screen
- Remove a screen
- Modify a screen
- Return to menu

Displaying a Screen

To display one of the listed screens, select it with the bar cursor and press F2. Note that device data and status will not be updated, as when accessing this screen from the Main Menu.

Removing a Screen

To delete a screen from the list, select it with the bar cursor and press F3. Note: After pressing F3, the chosen screen will appear. Press F1 to verify and erase the screen, or press F6 to abort the choice.

Adding or Modifying a Screen

To add a new screen to the system screens list (**Screen 1.6.2**), press F1. To modify a screen, select it with the bar cursor and press F5. In either case, a Scan Screen Configuration Screen (**Screen 1.6.2.3**) is displayed.

The Scan Screen Configuration has fields for:

- Screen name (up to 6 alphanumeric characters)
- Breaker name for power meter or trip unit on first main (up to 6 characters)
- Breaker name for power meter or trip unit on second main (up to 6 characters)
- List of breaker names of feeders on first bus
- List of feeders on second bus
- Tie breaker

NOTE

Screens with one main breaker may have 0 to 16 feeders. Screens with two main breakers may have 0 to 10 feeders per bus. Only one tie breaker may be configured per screen.

As indicated on the "Key Assignment" box you may:

- Show a screen
- Erase a field
- Reject an edit
- Edit a field
- Save/Return

NOTE

Feeder breakers listed top to bottom will appear left to right respectively in the system line diagram screen.

Display this Screen

To display the screen, press F2. The corresponding scan screen will be shown (**Screen 1.6.2.1**). Note that real-time data will not be updated on this screen.

Remove a Field

To remove a field entry, select it with the bar cursor and press F3. If a feeder is deleted from the middle of a feeder list, the feeders below it are moved up to fill the gap. If a main is deleted, all its feeders are automatically deleted.

Modify Field

To add or modify a field, use the arrow keys to position the bar cursor on the field and press F5.

If the field is a name, use an external keyboard or the membrane keypad to enter the new name and press ENTER.

If the field is a Main or Feeder or Tie Breaker, the Selected Breaker Screen will be displayed showing all the breakers configured for the Power Monitor. Use the cursor to select

the breaker for the field being modified in the Scan Screen questionnaire and press F6. Note: The Power Monitor will not permit selecting the wrong breaker type for the field being modified. Therefore a Tie breaker cannot be selected for a feeder position, and so on for other combinations.

The number of Mains and Feeders is automatically calculated by the Power Monitor based upon how many Mains and Feeders you enter.

Accept Changes

Pressing F6 will save all changes and return to the System Screen Menu (**Screen 1.6.2**).

Reject Changes

To reject all changes, press F4

Adjusting global parameters

To view or modify global parameters (including the system password), select "Change configuration" from the Main Menu (**Screen 1**) and enter the password. From the Change Configuration Menu (**Screen 1.6.3**), select "Global Parameters." The Global Settings Screen (**Screen 1.6.3**) is for viewing or setting the following items:

- Password (up to 9 characters)
- Screen blanking delay (up to 32767 min)
- System Screen Scan Rate (up to 32767 sec)
- Time (HH:MM:SS)
- Date (MM/DD/YY)
- Display messages on bottom line (Y/N)
- Baud rate of communication bus

To modify an item, highlight it with the bar cursor and press F5, then key in the new value and press ENTER. Suggested entries for all fields are shown below:

Password

A security password controls access to all configuration screens, clearing entries in the event log, and clearing power meters. Up to 10 alphanumeric characters and numbers may be entered. Changing the password requires entering it twice to ensure the proper password has been entered.

The password is not displayed for added security. A master password is always present and can be attained for your Power Monitor from Siemens should you lose your own password.

NOTE

If the password has been lost, preventing access to the configuration screens, including the Global Parameters Screen, contact Siemens Energy & Automation for your system's built-in master password.

CAUTION

Choose a password with characters accessible at the keypad. This will prevent the need for a keyboard when accessing password protected screens.

Screen Blanking

The Power Monitor screen will be blanked after this amount of time has elapsed after the last Power Monitor key has been pressed and if no alarms exist. Valid entries are from 1 thru 32767 minutes. If set to 0 the screen will never blank.

System Screen Scan Rate

This controls the rate at which System Scan screens and Discrete Input screens cycle. Valid entries are from 1 thru 60 seconds.

Time

This is the time used for all screens and devices. It is a 24 hour clock and data should be entered as such. Scroll to time and press F5. Key in the hour (HH) and press ENTER. Key in the minute (MM) and press ENTER. Key in the second (SS) and press ENTER. The Power Monitor puts in the colon automatically. Device clocks are automatically synchronized via a global "broadcast" command message.

Date

This is the date used for all screens. Enter correct date.

Display Messages

This permits messages to be displayed on the bottom line. Enter Y or N. Normally, messages are not set to be displayed as they can confuse the casual operator.

Baud Rate of Communication Bus

This function allows modification of the Power Monitor device communication baud rate.

When you are finished viewing or modifying the global parameters, press F6 to record the changes and return to the Change Configuration Menu (**Screen 1.6**); or press F4 to reject them.

NOTE

Modification to the communication baud rate should rarely be required. Care must be exercised when changing the pre-programmed baud rate since it requires that all devices attached to the Power Monitor also have their baud rate changed to the new value. Re-programming of the power meter and Static Trip IIC baud rates will automatically be performed over the communication bus via a global "broadcast" command message. (Contact Siemens Energy and Automation for specific details.)

Clearing Device Data

From the Main Menu (**Screen 1**) use the Up/Down keys to select "Clear Device Data" and press ENTER. Enter the password (**Screen 1.8**) to proceed to the Clear Menu (**Screen 1.7**).

Periodically you may need to clear or reset selected data for some or all devices, for example at the end of the utility billing cycle. This task can be accomplished from the password-protected menu, "Clear Menu" (**Screen 1.7**). The "Clear Menu" displays all the breakers configured for the system. As shown in the Key Assignment box, you can:

- Clear all KWHR
- Clear all KVARHR
- Clear all Min/Max
- Clear all Counters
- Clear unit KWHR
- Clear unit KVARHR
- Clear unit Min/Max
- Clear unit Counter

Clear All

Pressing 1, 2, 3, or 4 will Clear (reset) all of the KWHR, KVARHR, Min/Max, or Counters for all devices in the Power Monitor system. The Power Monitor will then begin to acquire new data from all devices.

NOTE

Min/max screens (**Screen 1.2.3** and **1.2.6**) will record the time and date that each device was last reset.

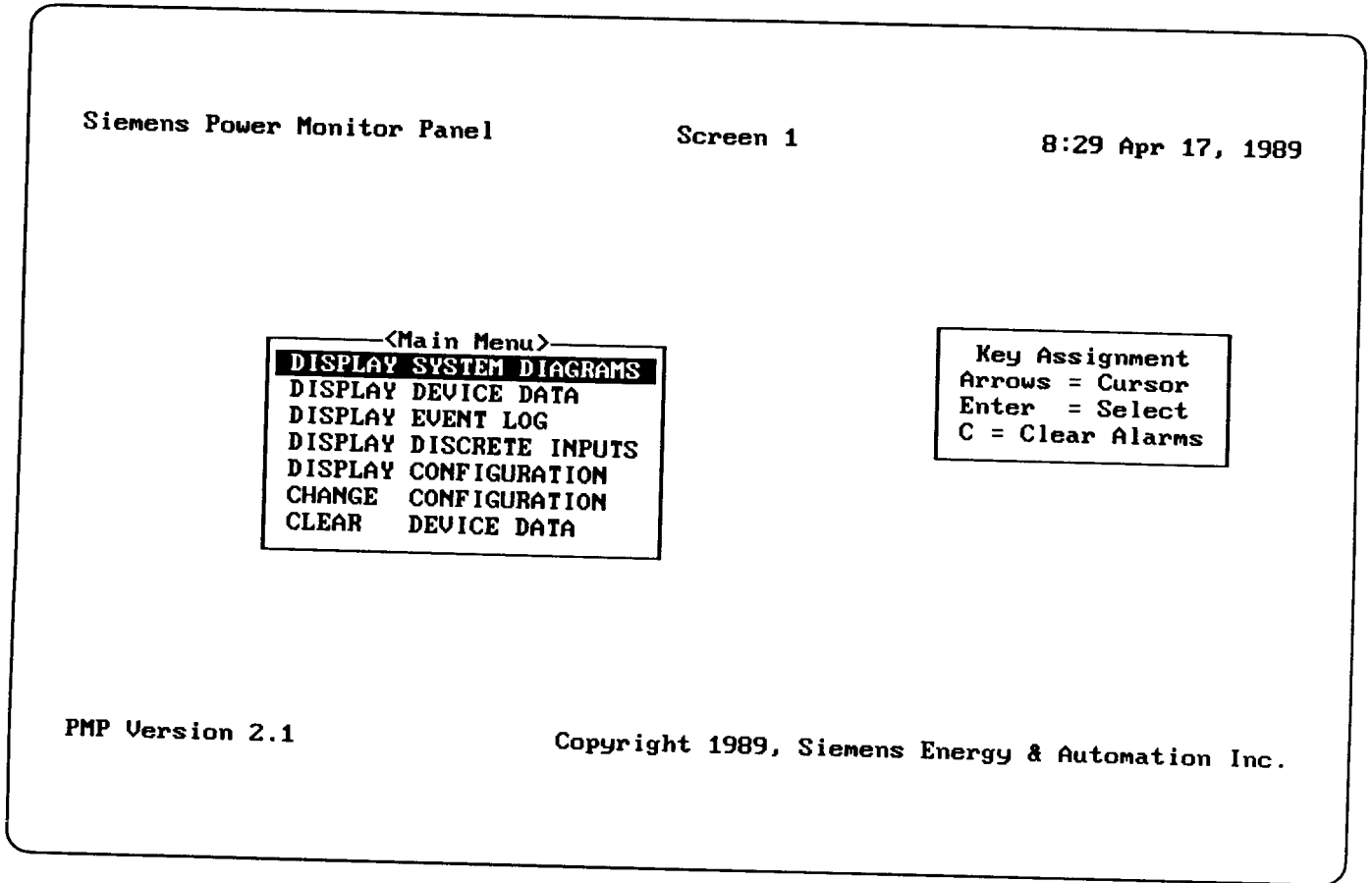
Clear Unit

Pressing F1, F2, F3, or F4 will clear (reset) the KWHR, KVARHR, Min/Max, or Counter for the device selected by the cursor. The Power Monitor will then begin to acquire new data from that device.

Pressing F6 will return to the Main Menu.

NOTE

Min/max screens (**Screen 1.2.3** and **1.2.6**) will record the time that the device was last reset.



Screen 1. Main Menu

Main Menu

Description

The Main Menu serves as the central hub for the Power Monitor. All seven branches can be accessed via the Main Menu.

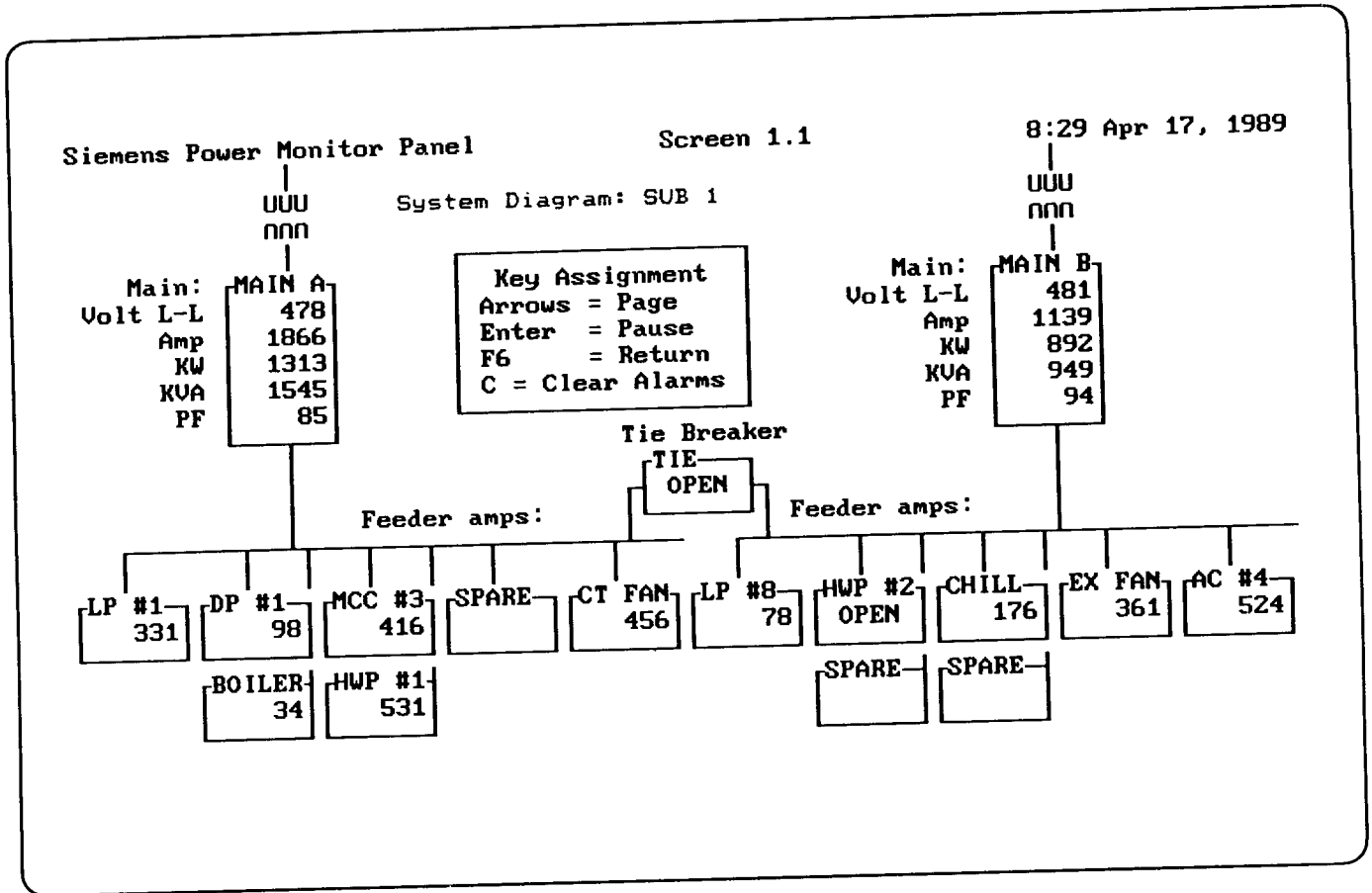
Location and Key Assignments

After power up, the Power Monitor automatically advances to the Main Menu. From any of the seven branches, the Main Menu can be reached by pressing F6. (Lower levels in the Power Monitor may require pressing F6 several times.)

References

Getting Started - The Main Menu

Appendix A: Screens



Screen 1.1. System Diagram

System Diagrams

Description

System Diagrams provide a graphic layout of the electrical system. These screens are configured by the user. Up to twenty devices may be configured on one screen and up to 16 screens can be configured. Mains with ACM-3600-S1 power meters, ACM-3700-S1 power meters, or 4700 power meters will show representative power data; mains with Static Trip IIIC's will display average current. Feeders and ties with ACM-3600-S1 power meters, ACM-3700-S1 power meters, 4700 power meters, or Static Trip IIIC will display average amps. Open breakers will be designated OPEN. Spare breakers with polling priority set to "Ignore" will show no data.

The scan screens will scroll automatically (scrolling is regulated by the global parameter, system screen scan rate). Pressing ENTER will stop the automatic scrolling. Left and right arrow keys will allow paging forward and backward.

Location and Key Assignments

On the Main Menu (**Screen 1**) scroll to "Display System Diagrams". Press ENTER.

Pressing F6 will return to the Main Menu.

References

Displaying Data - Displaying System Diagrams

Siemens Power Monitor Panel Screen 1.2 8:29 Apr 17, 1989

Display Device Data Menu:

Breaker Name	Breaker Type	Devices available	
MAIN A	Main	Trip unit	Meter
LP #1	Feeder	Trip unit	
DP #1	Feeder	Trip unit	
MCC #3	Feeder	Trip unit	
SPARE	Feeder	Trip unit	
CT FAN	Feeder	Trip unit	
BOILER	Feeder	Trip unit	
HWP #1	Feeder	Trip unit	
TIE	Feeder	Trip unit	
MAIN B	Feeder	Trip unit	Meter
LP #8	Feeder	Trip unit	
HWP #2	Feeder	Trip unit	
CHILL	Feeder	Trip unit	
EX FAN	Feeder	Trip unit	
AC #4	Feeder	Trip unit	
SPARE	Feeder	Trip unit	

Key Assignment

Arrows = Cursor
 F1 = Detail Data Screen
 F2 = Large Data Screen
 F3 = Min/Max Data Screen
 F6 = Return
 C = Clear Alarms

Screen 1.2. Display Device Data Menu

Display Device Data Menu

Description

The Display Device Menu lists each trip unit and meter configured to the system. Devices are listed by the breaker to which they are tied. Three data displays are available from this menu: detail data, large data, and min/max data. Pressing the appropriate function key will advance to the corresponding data screen.

Location and Key Assignments

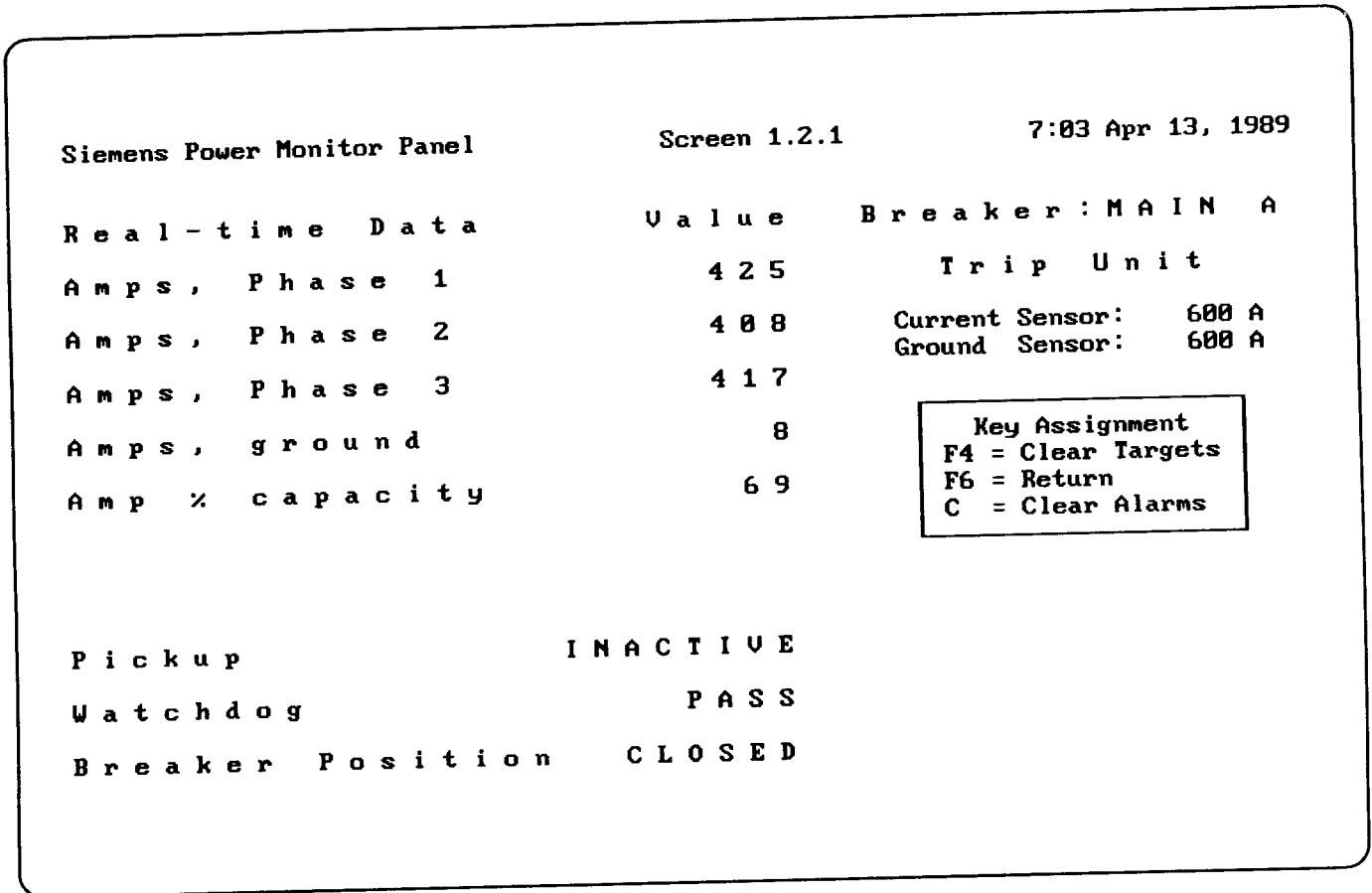
On the Main Menu (**Screen 1**), scroll to "Display Device Data" and press ENTER.

On lower level screens (series 1.2.x or 1.2.x.x) press F6 to return to this screen.

Pressing F6 will return to the Main Menu.

References

Displaying Data - Displaying Device Data Screens



Screen 1.2.1. Trip Unit Detail Data Screen

Trip Unit Detail Data Screen

Description

The trip unit detail data screen lists all the real-time data pertaining to the corresponding trip unit. Data is updated automatically.

Pressing F4 clears the targets at both the Power Monitor and the Static Trip IIIC after the security password has been entered.

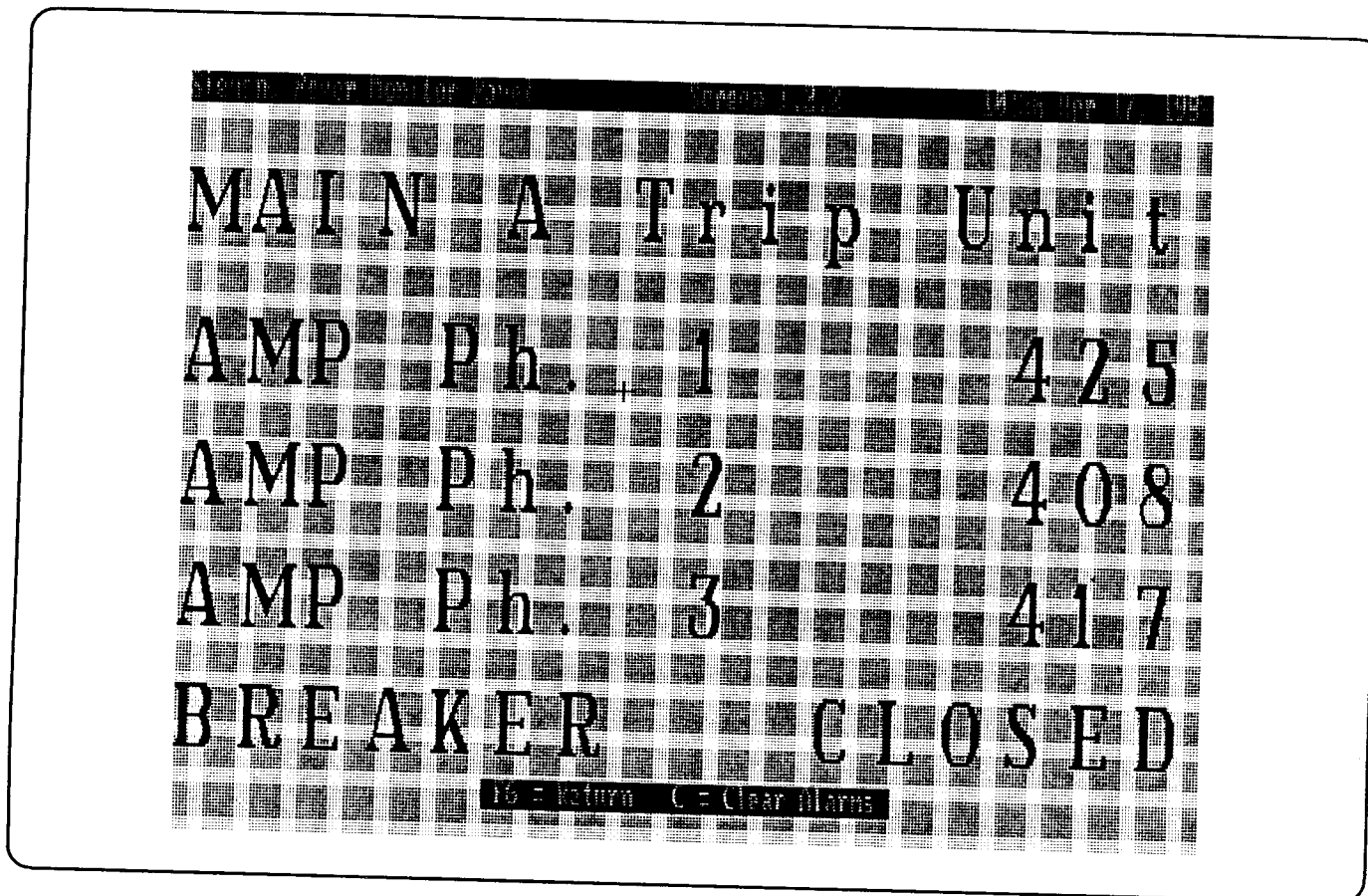
Location and Key Assignments

From the Device Data Menu (**Screen 1.2.4**) use the arrow keys to highlight the desired trip unit and press F1.

Pressing F6 from this screen will return to the Device Data Menu.

References

Displaying Data - trip unit detail screens



Screen 1.2.2. Trip Unit Large Data Screen

Trip Unit Large Data Screen

Description

The trip unit large data screen boldly summarizes the detail current data of the trip unit.

Location and Key Assignments

From the Display Device Menu (Screen 1.2) use the arrow keys to highlight the desired trip unit and press F2.

Pressing F6 from this screen will return to the Display Device Menu.

References

Displaying Data - Large (Character) trip unit screens

```

Siemens Power Monitor Panel          Screen 1.2.3          7:03 Apr 13, 1989

      Breaker :      M A I N      A      Trip Unit

Parameter          M i n          D a t e          T i m e
                  M M / D D / Y Y      h h : m m : s s
Amp phase 1      2 9 4          1 / 0 5 / 8 9      8 : 1 2 : 3 4
Amp phase 2      2 8 0          1 / 0 5 / 8 9      8 : 1 3 : 0 0
Amp phase 3      2 8 3          1 / 0 5 / 8 9      8 : 1 3 : 0 4
Amp ground       4           1 / 0 5 / 8 9      8 : 2 9 : 0 1

Parameter          M a x          D a t e          T i m e
                  M M / D D / Y Y      h h : m m : s s
Amp phase 1      4 5 5          1 / 0 5 / 8 9      9 : 0 1 : 0 9
Amp phase 2      4 4 3          1 / 0 5 / 8 9      9 : 0 8 : 5 6
Amp phase 3      4 4 9          1 / 0 5 / 8 9      9 : 1 5 : 0 7
Amp ground       9           1 / 0 5 / 8 9      8 : 5 3 : 4 2

Last cleared: 4/12/89 14:30:06

F6 = Return    C = Clear Alarms
    
```

Screen 1.2.3. Trip Unit Min/Max Screen

Trip Unit Min/Max Screen

Description

The trip unit min/max screens lists in tabular form all the minimum and maximum real-time values attained since the last time the trip unit was cleared.

Location and Key Assignments

From the Display Device Menu (**Screen 1.2**) use the arrow keys to highlight the desired trip unit and press F3.

Pressing F6 from this screen will return to the Display Device Menu.

References

Displaying Data - trip unit min/max screens

Siemens Power Monitor Panel		Screen 1.2.4	7:02 Apr 13, 1989
Breaker: MAIN A METER			
Parameter			Value
Volts, Phase 1	L - L		482
Volts, Phase 2	L - L		477
Volts, Phase 3	L - L		475
Volts, average	L - L		478
Amps, Phase 1			1867
Amps, Phase 2			1857
Amps, Phase 3			1841
Amps, average			1855
KW			1359
KWDemand			1420
KVA			1536
KVAR			714
Power Factor			89
Frequency			60.0
KWHR		489240	
KVARHR		257040	
F6 = Return C = Clear Alarms			

Screen 1.2.4. Power Meter Detail Data Screen

Power Meter Detail Data Screen

Description

The power meter detail data screen lists all the real-time data pertaining to the corresponding power meter. Data is updated automatically.

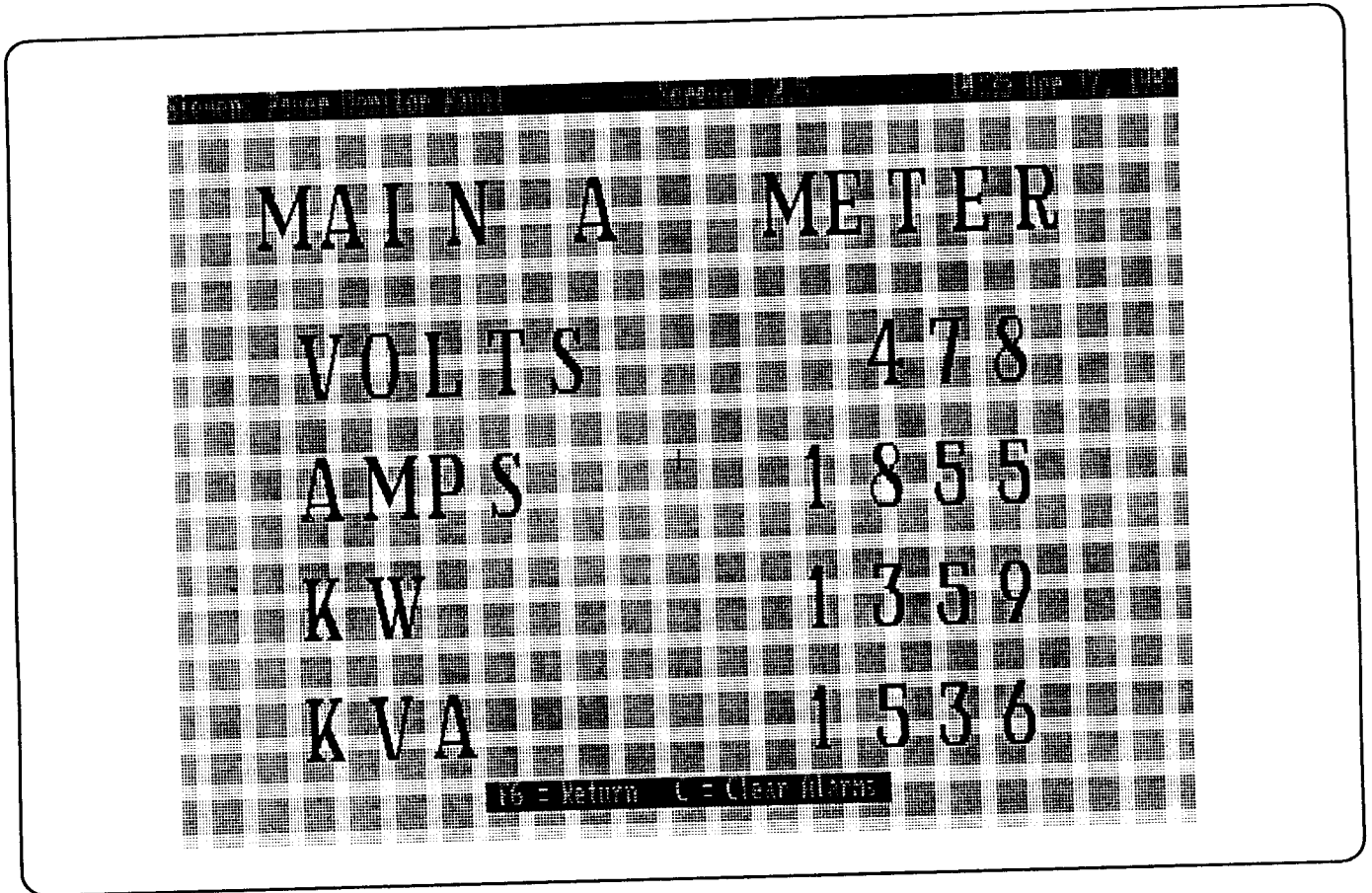
Location and Key Assignments

From the Device Data Menu (**Screen 1.2.4**) use the arrow keys to highlight the desired power meter and press F1.

Pressing F6 from this screen will return to the Device Data Menu.

References

Displaying Data - Power meter detail screens



Screen 1.2.5. Power Meter Large Data Screen

Power Meter Large Data Screen

Description

The power meter large data screen boldly summarizes the detail power data of the power meter.

Location and Key Assignments

From the Display Device Menu (**Screen 1.2**) use the arrow keys to highlight the desired power meter and press F2.

Pressing F6 from this screen will return to the Display Device Menu.

References

Displaying Data

Siemens Power Monitor Panel Screen 1.2.6 7:02 Apr 13, 1989

Parameter	Breaker: MAIN A			METER		
	Min	Date	Time	Max	Date	Time
		MM/DD/YY	hh:mm:ss		MM/DD/YY	hh:mm:ss
Volt Phase 1 L-L	470	1/06/89	8:35:13	485	1/05/89	17:54:59
Volt Phase 2 L-L	467	1/06/89	8:09:21	479	1/05/89	17:57:57
Volt Phase 3 L-L	463	1/05/89	17:00:03	481	1/05/89	17:01:03
Volt average L-L	465	1/06/89	8:08:20	483	1/05/89	17:54:00
Amp Phase 1	1850	1/06/89	8:27:07	1869	1/05/89	17:58:58
Amp Phase 2	1842	1/06/89	8:29:13	1859	1/05/89	17:02:04
Amp Phase 3	1836	1/05/89	17:59:02	1895	1/05/89	17:57:00
Amp average	1844	1/06/89	8:07:19	1855	1/05/89	17:55:02
KW	1340	1/06/89	9:30:09	1370	1/05/89	17:55:58
KWDemand	1307	1/06/89	9:24:02	1475	1/07/89	14:46:05
KVA	1520	1/06/89	9:28:06	1545	1/05/89	17:59:04
KVAR	698	1/06/89	9:31:07	720	1/05/89	17:53:06
Power Factor	72	1/06/89	9:26:00	93	1/05/89	17:56:03
Frequency	60.0	1/05/89	8:00:00	60.0	1/05/89	8:00:00

Last cleared: 4/12/89 14:29:57

F6 = Return C = Clear Alarms

Screen 1.2.6. Power Meter Min/Max Screen

Power Meter Min/Max Screen

Description

The power meter min/max screens lists in tabular form all the minimum and maximum real-time values attained since the last time the power meter was cleared.

Location and Key Assignments

From the Display Device Menu (**Screen 1.2**) use the arrow keys to highlight the desired power meter and press F3.

Pressing F6 from this screen will return to the Display Device Menu.

Reference

Displaying Data - Power meter min/max screens

Siemens Power Monitor Panel
 Screen 1.3
 7:56 Apr 14, 1989

Key Assignment
 F1 = Home
 F6 = Return
 C = Clear Alarms
 F4 = Erase Log
 F5 = Erase Event
 Arrow = Cursor/Page

EVENT LOG SCREEN
 Cursor event number: 1

```

4/13/89 9:48:59 Alarms reset
4/13/89 9:48:54 MAIN B Meter: Volts L-L 489/479/489 was max - now within limit
4/13/89 9:48:41 MAIN B Meter: Volts L-L 488/479/488 too high
4/13/89 9:43:02 MAIN B Meter: PF of 81 was min - now within limits
4/13/89 9:42:35 Alarms acknowledged
4/13/89 9:42:21 MAIN B Meter: PF of 81 too low
4/13/89 9:40:26 Alarms acknowledged
4/13/89 9:39:59 CHILL Trip Unit: Amp unbalance Pickup 809/804/796 GND 9
4/13/89 9:39:58 CHILL Trip Unit: Short time/GND Pickup 809/804/796 GND 9
4/13/89 9:37:45 LP #1 Trip Unit: Amps 606/603/597 was max - now within limits
4/13/89 9:37:42 Alarms acknowledged
4/13/89 9:37:39 LP #1 Trip Unit: Amps 606/603/597 too high
4/13/89 8:57:06 MAIN A Meter: Volts L-L 485/477/481 was min - now within limit
4/13/89 8:56:51 MAIN A Meter: Volts L-L 489/479/481 too low
4/13/89 13:50:11 Alarms acknowledged
4/10/89 13:14:57 MCC #3 Trip Unit: Amp unbalance Pickup inactive
    
```

Screen 1.3. Event Log

Event Log Description

The Event Log is a reverse chronological listing of the 64 most recent events. Breaker name, event condition, pertinent data at time of event, and accurate time and date stamp are included with each event. All or selected events may be deleted with password access. Arrow keys permit scrolling thru the event log.

References

Alarms and Events - Event log

Location and Key Assignments

Pressing F6 returns to the Main Menu.
 From the Main Menu (Screen 1), scroll to "Display Event Log" and press ENTER.

Siemens Power Monitor Panel

Screen 1.4

15:28 Mar 23, 1989

Discrete Inputs:

Name:

Status:

Key Assignment
 Arrows = Page
 Enter = Pause
 F6 = Return
 C = Clear Alarms

1	UTILILITY KW PULSE	17688	ON
2	CAPACITOR BANK		
3	TRANSF #1 TEMP		HIGH
4	TRANSF #1 FANS		OFF
5	THROWOVER SYSTEM		NORMAL
6	UTILILITY KVAR PULSE	525	
7	THROWOVER SYSTEM		AUTO
8	TRANSF #1 FAULT PRES		ALARM

Screen 1.4. Discrete Inputs Screen

Discrete Inputs Screen

Description

Discrete inputs are on/off status indicators. All discrete inputs are displayed on this screen. Pressing ENTER will stop the screens from automatically scrolling. Left and right arrow keys can be used to page forward or backward.

References

Discrete Inputs - Discrete Inputs

Location and Key Assignments

From the Main Menu (**Screen 1**) scroll down to Display Discrete Inputs and press ENTER.

Pressing F6 from this screen will return to the Main Menu.

Screen 1.5. View Configuration Menu

View Configuration Menu

Description

The View Configuration Menu permits access to view breaker configurations, system scan screens, and global parameters.

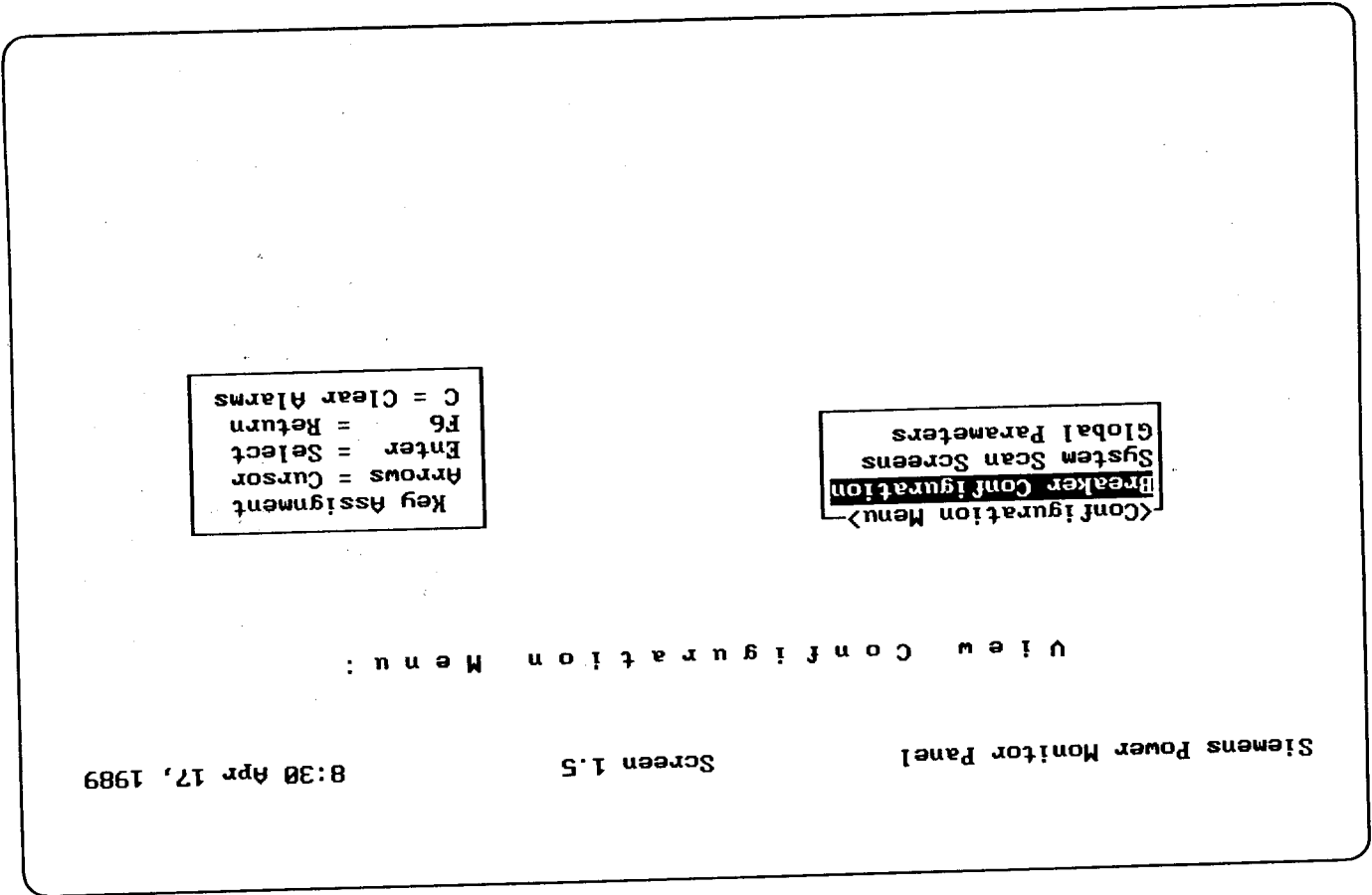
Location and Key Assignments

From the Main Menu (Screen 1) scroll to Display Configuration and press ENTER.

Power Monitor and Device Configuration - Displaying Configuration

References

From lower level screens (1.5.x and 1.5.x.x) pressing F6 the correct number of times will return to this screen. Pressing F6 from this screen will return to the Main Menu.



Siemens Power Monitor Panel

Screen 1.5.1

8:30 Apr 17, 1989

Breaker Configuration menu:

Breaker Name	Breaker Type	Device[address]
MAIN A	Feeder	Trip unit[222]
LP #1	Feeder	Trip unit[1]
DP #1	Feeder	Trip unit[2]
MCC #3	Feeder	Trip unit[3]
SPARE	Feeder	Trip unit[4]
CT FAN	Feeder	Trip unit[5]
BOILER	Feeder	Trip unit[6]
HWP #1	Feeder	Trip unit[7]
TIE	Feeder	Trip unit[8]
MAIN B	Feeder	Trip unit[8]
LP #8	Feeder	Trip unit[12]
HWP #2	Feeder	Trip unit[13]
CHILL	Feeder	Trip unit[33]
EX FAN	Feeder	Trip unit[123]
AC #4	Feeder	Trip unit[221]
SPARE	Feeder	Trip unit[37]

Meter[635]

Meter[667]

Key Assignment

Arrows = Cursor

F1 = Alarm Limits

F2 = Protective Settings

F3 = Discrete Inputs

F5 = View Breaker

F6 = Return

C = Clear Alarms

Breaker Configuration Menu

Screen 1.5.1. Breaker Configuration Menu

Description

The Breaker Configuration Menu lists all power meters and trip units by breaker name and type. Devices are also listed by address. The following may be viewed from this menu: alarm limits and protective settings, discrete inputs, and device configurations.

References

Power Monitor and Device Configuration - Displaying Configuration

Location and Key Assignments

From the View Configuration Menu (Screen 1.5) scroll to Breaker Configuration and press ENTER. Pressing F6 will return to the change configuration menu.

Screen 1.5.1.1. Alarm Limits Screen

Alarm Limits Screen

Description

The Alarm Limits Screen lists the alarming and logging parameters for the trip unit and/or power meter of the selected breaker.

Location and Key Assignments

From the Breaker Configuration Menu (Screen 1.5.1) scroll to the selected breaker and press F1.

References

Power Monitor and Device Configuration - Displaying Configuration

Pressing F6 will save any changes and return to the breaker configuration menu.

Parameter	Unit	Value	Log	Sound	Key Assignment
Trip Unit	Amps	85	High	Seconds only and log	F6 = Return
Ground amps	Amp % cap.	10	N	N	
Pickup	Brkr status	60	N	N	
Meter	Volts L-L	475	High	485	
	Amp	1800	18	Y	
	KVA				
	KW				
	KWD				
	KVAR				
	PF	85	14	N	
	Frequency	20	17	N	
	Volts unbal				
	Amp unbal				

Siemens Power Monitor Panel Alarm Limits for breaker: MAIN A Screen 1.5.1.1 8:30 Apr 17, 1989

Screen 1.5.1.2. Protective Settings Screen

Protective Settings Screen

Description

The Protective Settings screen lists the parameters for which the Power Monitor will configure the trip unit to respond to certain conditions.

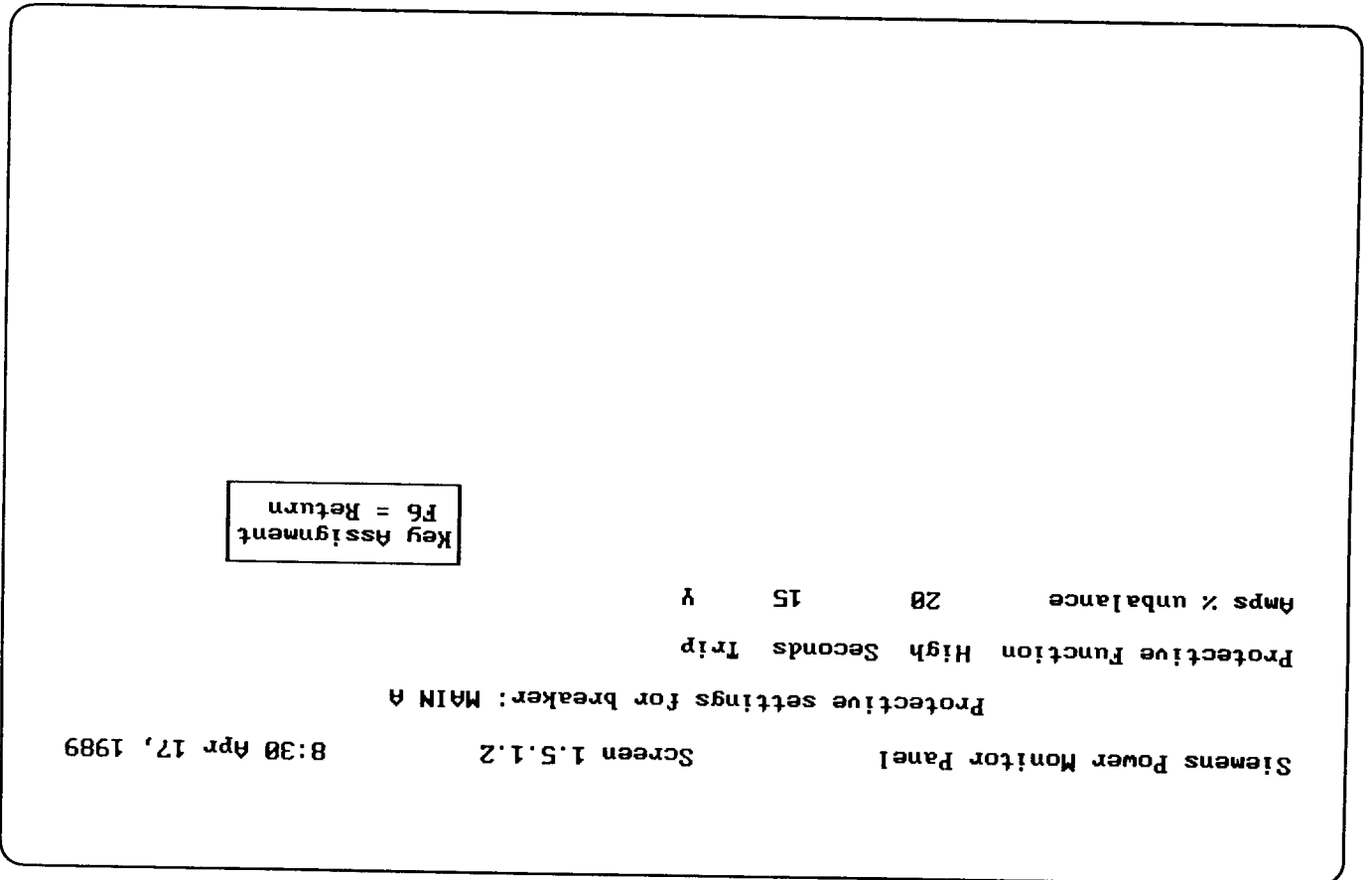
Location and Key Assignments

From the Breaker Configuration Menu (Screen 1.5.1) scroll to the selected trip unit and press F2.

References

Power Monitor and Device Configuration - Displaying Configuration

Pressing F6 will return to the Breaker Configuration Menu.



Siemens Power Monitor Panel

Screen 1.5.1.3

8:53 Apr 17, 1989

D i s c r e t e I n p u t C o n f i g u r a t i o n :

B r e a k e r : M A I N A

Counter Input:

Name:

1 **UTILITY KW PULSE** 800

Scale Factor:

2-State Inputs:

Name:

1	CAPACITOR BANK	OFF	ON	Alarms:
2	TRANSF #1 TEMP	HIGH	NORMAL	State Log
3	TRANSF #1 FANS	RUNNING	OFF	only and log
4	THROUOVER SYSTEM	AUTO	NORMAL	Sound

State Messages: On (1) Off (0)

Key Assignment
F6 = Return

Discrete Inputs Configuration

Screen 1.5.1.3. Discrete Inputs Configuration Screen

Description

The Discrete Input Configuration screen lists the discrete inputs and how they are configured to the specified power meter.

References

Power Monitor - Displaying Configuration

Location and Key Assignments

From the Breaker Configuration Menu (Screen 1.5.1) scroll to the selected power meter and press F3. Pressing F6 will return to the Breaker Configuration Menu.

Siemens Power Monitor Panel Screen 1.5.1.4 6:52 Apr 18, 1989

Breaker Configuration:

Breaker Type	:	Main
Breaker Name	:	MAIN A
Trip Unit		
Device Address	:	222
Current Sensor Rating	:	800
Ground Sensor Rating	:	800
Polling Priority	:	Ignore
Meter Device		
Serial Number/Address	:	1002
Volt Scale	:	480
Volt Mode	:	1
Amps Scale	:	3000
Demand Period Length	:	1
Number of Periods	:	15
Polling Priority	:	1

Key Assignment
F6 = Return

Screen 1.5.1.4. Breaker Configuration Screen

Breaker Configuration Screen

Description

The Breaker Configuration Screen lists the configuration parameters of the trip unit and/or power meter of the selected breaker.

Location and Key Assignments

From the Breaker Configuration Menu (Screen 1.5.1) scroll to a specific breaker and press F5.

References

Power Monitor and Device Configuration - Displaying Configuration

Pressing F6 will return to the Breaker Configuration Menu.

Screen 1.5.2. System Diagram

System Diagram

Description

This screen summarizes the system scan screens.

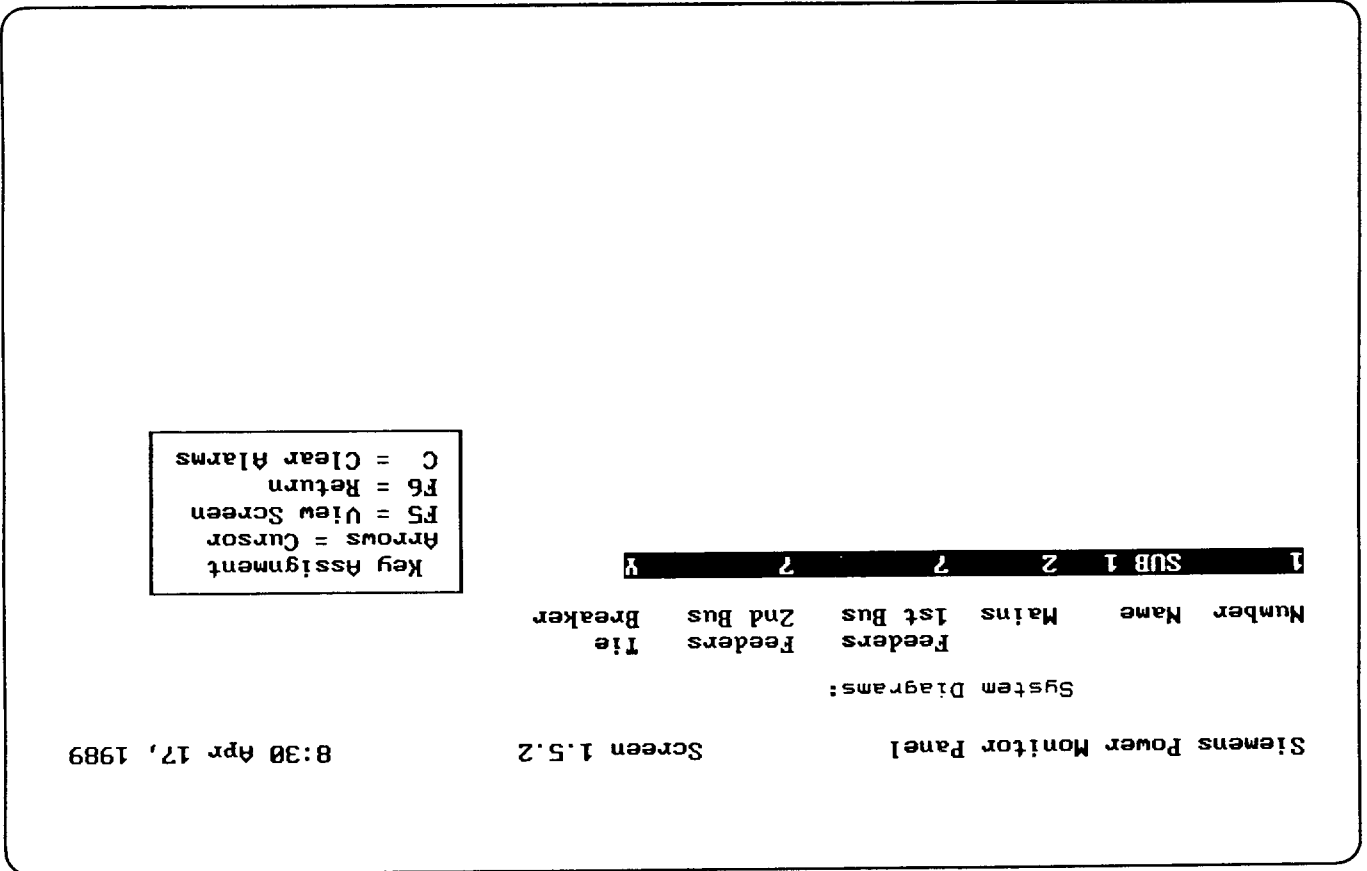
Location and Key Assignments

From the View Configuration Menu (Screen 1.5) scroll to System Diagrams and press ENTER.

References

Power Monitor and Device Configuration - Displaying Configuration

Pressing F6 will return to the View Configuration Menu.



```

Siemens Power Monitor Panel
Screen 1.5.2.3
8:30 Apr 17, 1989
Screen name: SUB 1
System Diagram Configuration:
Main: MAIN A
Feeder:
1 - LP #1
2 - DP #1
3 - MCC #3
4 - SPARE
5 - CT FAN
6 - BOILER
7 - HWP #1
Tie breaker:
TIE
Main: MAIN B
Feeder:
1 - LP #8
2 - HWP #2
3 - CHILL
4 - EX FAN
5 - AC #4
6 - SPARE
7 - SPARE
Key Assignment
F6 = Return
    
```

Screen 1.5.2.3. System Diagram Configuration

System Diagram Configuration

Description

The System Diagram lists the screen configuration.

Location and Key Assignments

From the System Diagram Menu (Screen 1.5.2) scroll to select a scan screen and press F5.

References

Power Monitor and Device Configuration - Displaying Configuration

Pressing F6 will return to the System Diagram Menu.

Screen 1.5.3. Global Settings Screen

Global Settings Screen

Description

The Global Settings screen lists the global settings. Corresponding function keys permit modifying the settings.

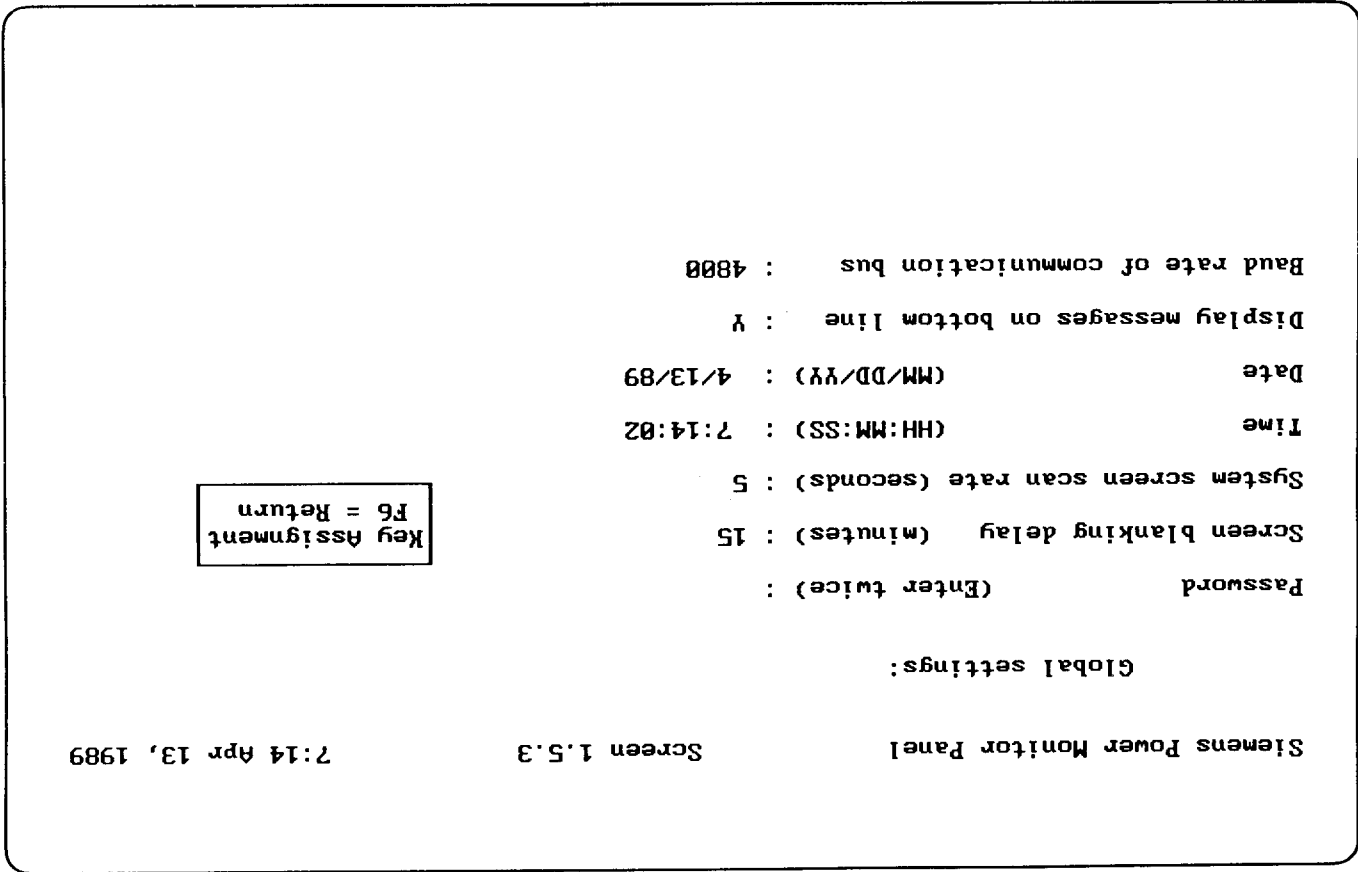
Location and Key Assignments

From the View Configuration Menu (Screen 1.5) scroll to Global Settings and press ENTER.

References

Power Monitor and Device Configuration - Displaying Configuration

Pressing F6 will return to View Configuration Menu.



Siemens Power Monitor Panel

Screen 1.6

8:31 Apr 17, 1989

C h a n g e C o n f i g u r a t i o n M e n u :

<Configuration Menu>
Breaker Configuration
System Scan Screens
Global Parameters

Key Assignment
Arrows = Cursor
Enter = Select
F6 = Return
C = Clear Alarms

Screen 1.6. Change Configuration Menu

Change Configuration Menu

Description

The Change Configuration Menu permits access to modifying breaker configurations, system scan screens, and global parameters.

Location and Key Assignments

From the Main Menu (Screen 1) scroll to Change Configuration and press ENTER. Key in the password when prompted (Screen 1.8).

References

From lower level screens (1.6.x and 1.6.x.x) pressing F6 the correct number of times will return to this screen.
Pressing F6 from this screen will return to the Main Menu.
Power Monitor and Device Configuration - Changing Configuration
Power Monitor and Device Configuration - Breaker Configuration

Siemens Power Monitor Panel Screen 1.6.1 8:31 Apr 17, 1989

Breaker Configuration menu:

Breaker Name	Breaker Type	Device[address]
MAIN A	Feeder	Trip unit[222]
LP #1	Feeder	Trip unit[1]
DP #1	Feeder	Trip unit[2]
MCC #3	Feeder	Trip unit[3]
SPARE	Feeder	Trip unit[4]
CT FAN	Feeder	Trip unit[5]
BOILER	Feeder	Trip unit[6]
HWP #1	Feeder	Trip unit[7]
TIE	Feeder	Trip unit[8]
MAIN B	Feeder	Trip unit[8]
LP #8	Feeder	Trip unit[12]
HWP #2	Feeder	Trip unit[13]
CHILL	Feeder	Trip unit[33]
EX FAN	Feeder	Trip unit[123]
AC #4	Feeder	Trip unit[221]
SPARE	Feeder	Trip unit[37]

Meter[635]

Meter[667]

Key Assignment
Arrows = Cursor
F1 = Alarm Limits
F2 = Protective Settings
F3 = Discrete Inputs
F4 = Add Breaker/Device
F5 = Device Configuration
F6 = Return
C = Clear Alarms

Screen 1.6.1. Breaker Configuration Menu

Breaker Configuration Menu

Description

The Breaker Configuration Menu lists all power meters and trip units by breaker name and type. Devices are also listed by address. From this menu: alarm limits and protective settings may be set, discrete inputs added or modified, breakers or devices added, and devices configured.

References

Power Monitor and Device Configuration - Breaker Configuration

Pressing F6 will return to the change configuration menu. From the Change Configuration Menu (Screen 1.6) scroll to Breaker Configuration and press ENTER.

Location and Key Assignments

Siemens Power Monitor Panel

Screen 1.6.1.1

8:31 Apr 17, 1989

Alarm limits for breaker: MAIN A

Item	Setting	Log	Sound	Seconds only and log	Y	N
Trip Unit	Low	High	Seconds only and log			
Amps						
Ground amps						
Amp % cap.	85					
Pickup						
Brkr status						
Amp unbal						
Meter	Low	High	Seconds only and log			
Volt L-L	475	485	6			
Amp		1800	18			
KVA						
KW						
KMD						
KVAR						
PF	85					
Frequency						
Volt unbal						
Amp unbal						

Key Assignment

Arrows = Cursor

F3 = Clear Field

F4 = Reject Edits

F5 = Edit Field

F6 = Return / Save

C = Clear Alarms

Screen 1.6.1.1. Alarm Limits Configuration Screen

Alarm Limits Configuration

Description

The Alarm Limits Screen lists the alarming and logging parameters for the trip unit and/or power meter of the selected breaker. Pressing the appropriate function key permits a setting to be cleared, rejected, edited or saved.

Location and Key Assignments

From the Breaker Configuration Menu (Screen 1.6.1) scroll to the selected breaker and press F1.

References

Power Monitor and Device Configuration - Adding or Modifying a breaker

Pressing F6 will save all changes and return to the Breaker Configuration Menu.

Screen 1.6.1.2. Protective Settings Configuration

Protective Settings Configuration Screen

Description

The Protective Settings screen lists the parameters for which the Power Monitor will configure the trip unit to respond to certain conditions.

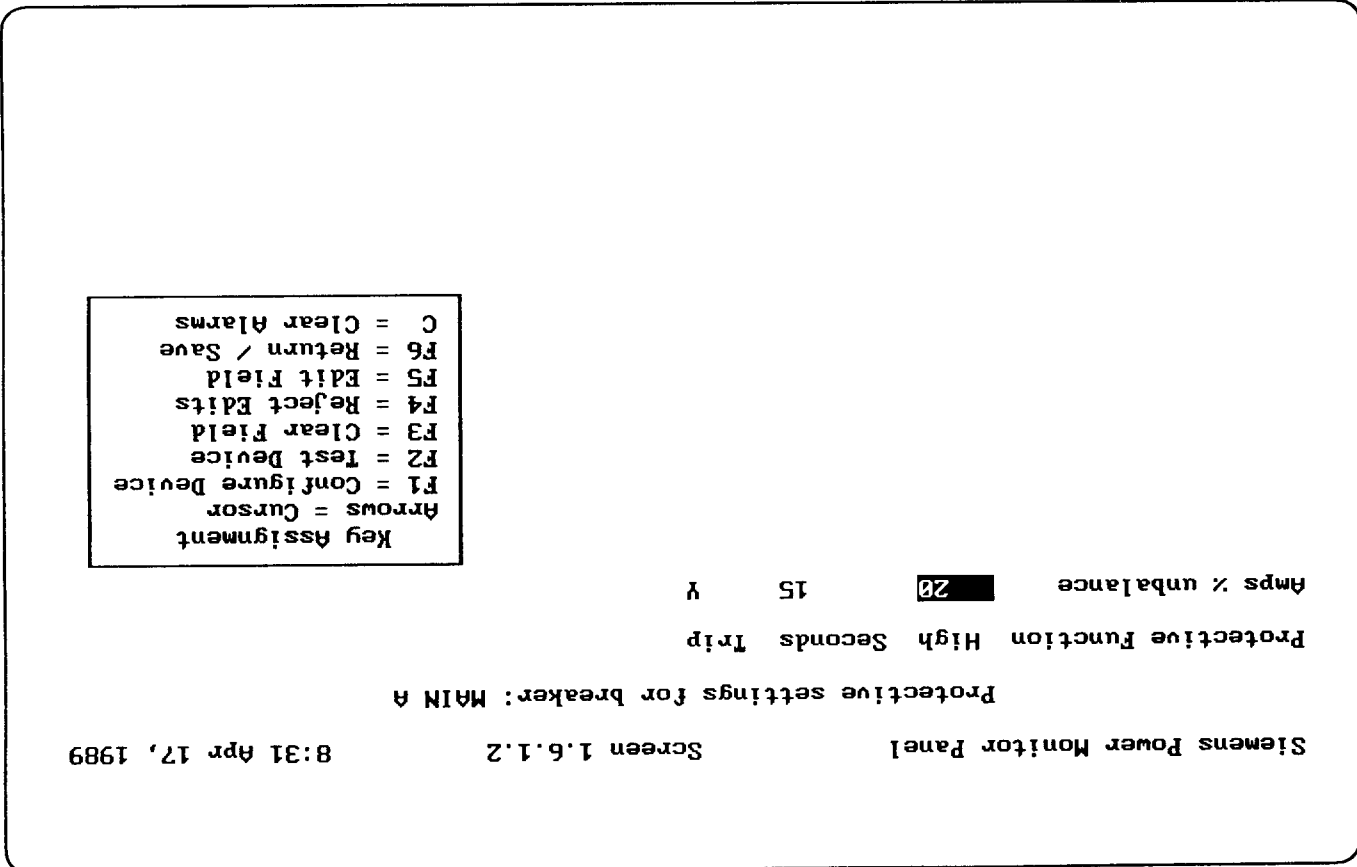
Location and Key Assignments

From the Breaker Configuration Menu (Screen 1.6.1) scroll to the selected trip unit and press F2.

Pressing F6 will save all changes and return to the Breaker Configuration Menu.
 Power Monitor and Device Configuration - Setting Protective Functions

References

Power Monitor and Device Configuration - Setting Protective Functions



Siemens Power Monitor Panel Screen 1.6.1.3 7:25 Apr 13, 1989

D i s c r e t e I n p u t C o n f i g u r a t i o n :

B r e a k e r : M a i n A

Counter Input: Name: Scale Factor: 550

1 **Utility kW Pulse**

2-State Inputs: State Messages: On (1) Off (0)

1 Capacitor Bank On Off ON N ON N State Log Sound and Log

2 Transf #1 Temp High Normal ON N N N

3 Transf #1 Fans Running Off CHANGE N N N

4 Throwover System Auto Manual OFF N N N

Key Assignment
 Arrows = Cursor
 F3 = Erase Line
 F4 = Reject Edits
 F5 = Edit Field
 F6 = Return/Save

Discrete Input Configuration

Screen 1.6.1.3. Discrete Input Configuration Screen

Description

The Discrete Input Configuration screen lists the discrete inputs and how they are configured to the specified power meter. Corresponding function keys permit modifying the fields.

Location and Key Assignments

From the Breaker Configuration Menu (Screen 1.6.1) scroll to the selected power meter and press F3.

References

Pressing F6 will save all changes and return to the Breaker Configuration Menu.

Power Monitor and Device Configuration - Adding or Modifying Discrete Inputs

Siemens Power Monitor Panel

Screen 1.6.1.4

14:36 Mar 23, 1989

Breaker Configuration:

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;"> Key Assignment Arrows = Cursor F1 = Configure Unit F2 = Test Unit F3 = Erase Breaker F4 = Reject Edits F5 = Edit Field F6 = Return / Save C = Clear Alarms </td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="padding: 5px;"> A = Reprogram Device Address F = Find Address </td> </tr> </table>	Key Assignment Arrows = Cursor F1 = Configure Unit F2 = Test Unit F3 = Erase Breaker F4 = Reject Edits F5 = Edit Field F6 = Return / Save C = Clear Alarms	A = Reprogram Device Address F = Find Address	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Breaker Type</td> <td style="width: 50%;">: main</td> </tr> <tr> <td>Breaker Name</td> <td>: MAIN A</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>Trip Unit</td> <td>: 222</td> </tr> <tr> <td>Device Address</td> <td>: 800</td> </tr> <tr> <td>Current Sensor Rating:</td> <td>: 800</td> </tr> <tr> <td>Ground Sensor Rating</td> <td>: 800</td> </tr> <tr> <td> </td> <td>: Ignore</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>Meter Device</td> <td>: 1002</td> </tr> <tr> <td>Serial Number/Address:</td> <td>: 120</td> </tr> <tr> <td>Volt Scale</td> <td>: 1</td> </tr> <tr> <td>Volt Mode</td> <td>: 1000</td> </tr> <tr> <td>Amps Scale</td> <td>: 1</td> </tr> <tr> <td>Demand Period Length</td> <td>: 15</td> </tr> <tr> <td>Number of Periods</td> <td>: 1</td> </tr> <tr> <td> </td> <td>: 1</td> </tr> <tr> <td> </td> <td>: 1</td> </tr> </table>	Breaker Type	: main	Breaker Name	: MAIN A			Trip Unit	: 222	Device Address	: 800	Current Sensor Rating:	: 800	Ground Sensor Rating	: 800		: Ignore			Meter Device	: 1002	Serial Number/Address:	: 120	Volt Scale	: 1	Volt Mode	: 1000	Amps Scale	: 1	Demand Period Length	: 15	Number of Periods	: 1		: 1		: 1
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Serial Number/Address:	: 120																																						
Volt Scale	: 1																																						
Volt Mode	: 1000																																						
Amps Scale	: 1																																						
Demand Period Length	: 15																																						
Number of Periods	: 1																																						
	: 1																																						
	: 1																																						

Breaker Configuration Screen

Screen 1.6.1.4. Breaker Configuration Screen

Description

The Breaker Configuration Screen lists the configuration parameters of the trip unit and/or power meter of the selected breaker. Corresponding function keys permit modifying and configuring the device.

References

Power Monitor and Device Configuration - Adding or Modifying a breaker

Location and Key Assignments

From the Breaker Configuration Menu (Screen 1.6.1) press F4 to add a new breaker, or scroll to a specific breaker and press F5.

Pressing F6 will return to the Breaker Configuration Menu.

Screen 1.6.2. System Diagrams

System Diagrams

Description

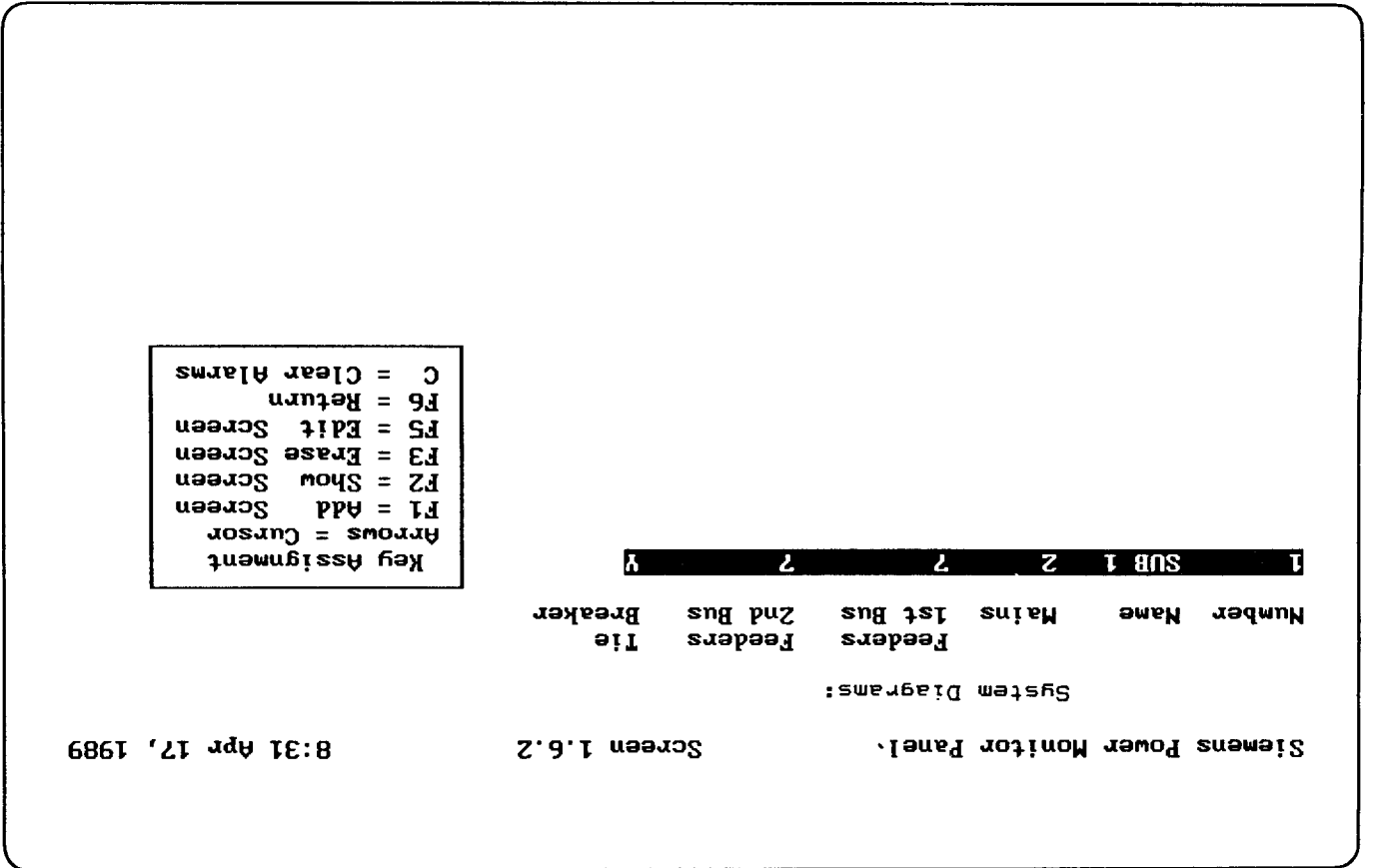
This screen summarizes the System Diagrams. Corresponding function keys permit adding, showing, erasing, or editing selected screens.

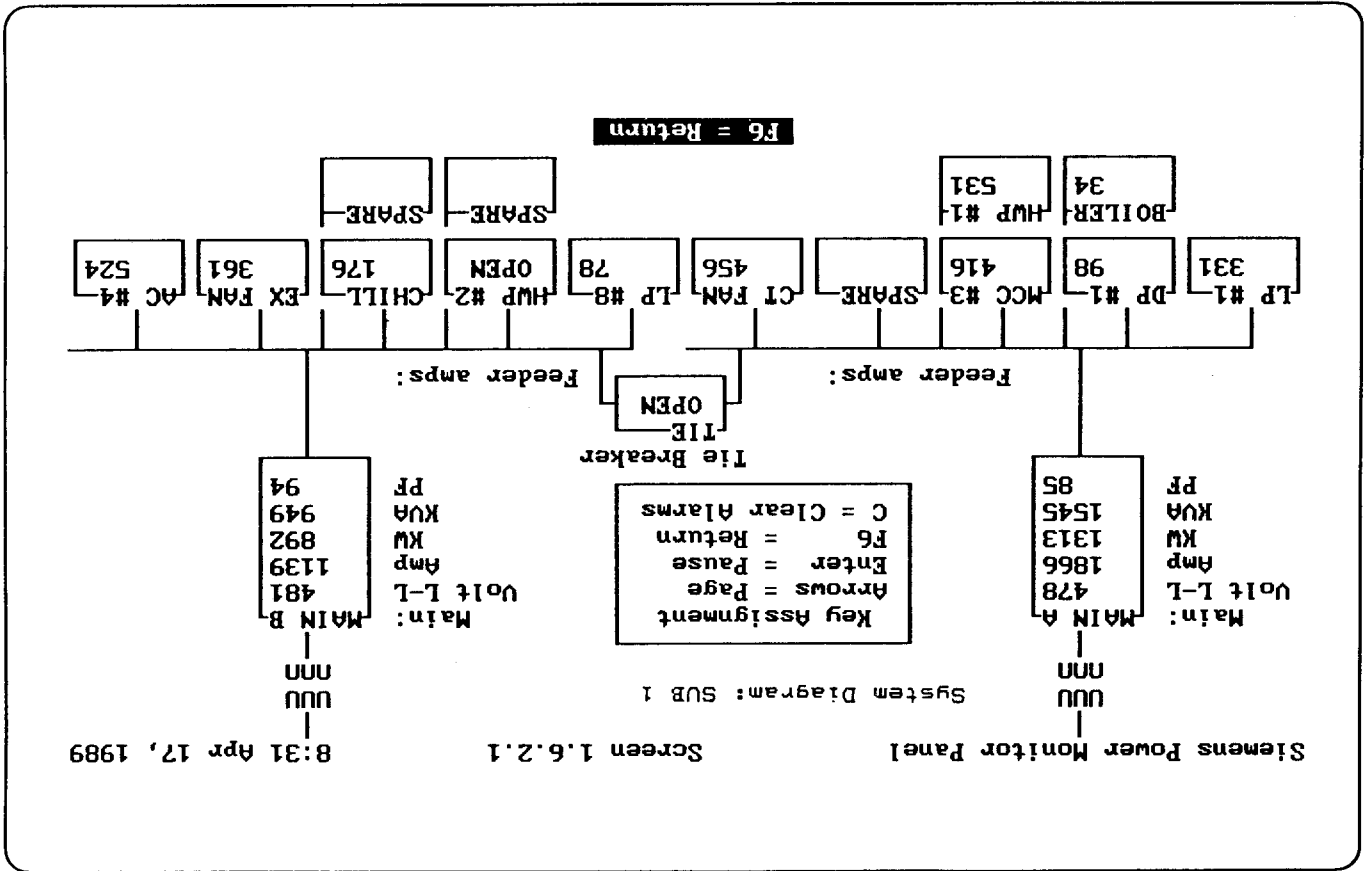
Location and Key Assignments

From the Change Configuration Menu (**Screen 1.6**) scroll to System Diagrams and press ENTER. Pressing F6 will return to the change configuration menu.

References

Power Monitor and Device Configuration - Defining System Diagrams





Screen 1.6.2.1. (Show) System Diagram

(Show) System Diagram

Description

(Show) System Diagram (Screen 1.6.2.1) displays the single line diagram created. Values on this screen are not updated.

Location and Key Assignments

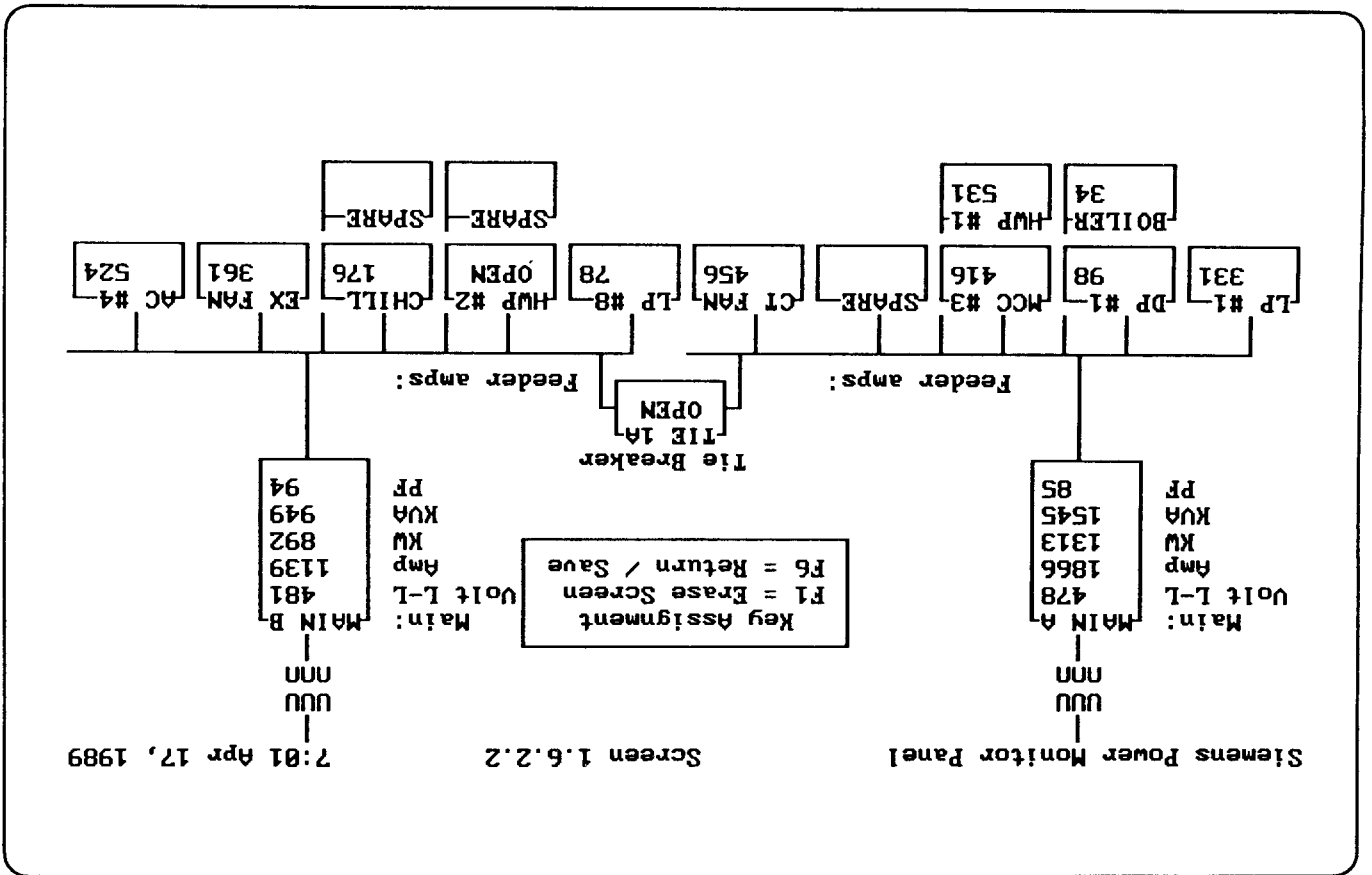
From System Diagrams (Screen 1.6.2) press F2 to display this screen.

References

Pressing F6 will return to System Screens.

Power Monitor and Device Configuration - Displaying a Screen

Power Monitor and Device Configuration - Defining a Diagrams



Screen 1.6.2.2. (Erase) System Diagram

(Erase) System Diagram

Description

(Erase) System Diagram displays the screen which was selected to be erased.

Location and Key Assignments

From System Diagrams (Screen 1.6.2) press F3 to display the screen selected to be erased.

References

Power Monitor and Device Configuration - Removing a Screen
 Pressing F1 will verify the request to erase the screen. Pressing F6 will return to System Diagrams without erasing the field.

System Diagram Configuration

Screen 1.6.2.3. System Diagram Configuration

Description

The System Diagram Configuration screen permits adding or modifying a scan screen.

Location and Key Assignments

From the System Diagram Menu (Screen 1.6.2) scroll to select a scan screen and press F5, or press F1 to add a new screen.

Pressing F6 will return to the System Diagram Menu.

References

Power Monitor and Device Configuration - Adding or Modifying a screen

```

Siemens Power Monitor Panel
Screen 1.6.2.3
System Diagram Configuration:
Screen name: SUB 1A
Main: MAIN A
Feeder:
1 - LP #1
2 - DP #1
3 - MCC #3
4 - SPARE
5 - CT FAN
6 - BOILER
7 - HWP #1
Tie Breaker:
TIE 1A
Main: MAIN B
Feeder:
1 - LP #8
2 - HWP #2
3 - CHILL
4 - EX FAN
5 - AC #4
6 - SPARE
7 - SPARE
Key Assignment
Arrows = Cursor
F2 = Show Screen
F3 = Erase Field
F4 = Reject Edits
F5 = Edit Field
F6 = Return/Save
C = Clear Alarms
    
```

Siemens Power Monitor Panel

Screen 1.6.2.4

7:02 Apr 17, 1989

Select Tie Breaker

Breaker Name	Breaker Type	Devices available
LP #1	Feeder	Trip unit
DP #1	Feeder	Trip unit
MCC #3	Feeder	Trip unit
SPARE	Feeder	Trip unit
CT FAN	Feeder	Trip unit
BOILER	Feeder	Trip unit
HWP #1	Feeder	Trip unit
MAIN B	Main	Trip unit
LP #8	Feeder	Trip unit
HWP #2	Feeder	Trip unit
CHILL	Feeder	Trip unit
EX FAN	Feeder	Trip unit
AC #4	Feeder	Trip unit
SPARE	Feeder	Trip unit
SPARE	Feeder	Trip unit

Key Assignment
Arrows = Cursor
F4 = Abort Selection
F6 = Return / Save

Select Breaker Screen

Description

The Select Breaker Screen permits selecting a breaker for the System Diagrams.

Location and Key Assignments

Power Monitor and Device Configuration - Modify field

References

Pressing F6 will save all changes and return to the System Diagram Configuration screen. Pressing F4 will abort any selections and return to the System Diagram Configuration screen.

Screen 1.6.2.4. Select Breaker Screen

From the System Diagram Configuration screen (Screen 1.6.2.3) scroll to select a breaker position to be modified and press the corresponding function key.

Screen 1.6.3. Global Settings

Global Settings

Description

Global Settings Screen permits setting the global parameters.

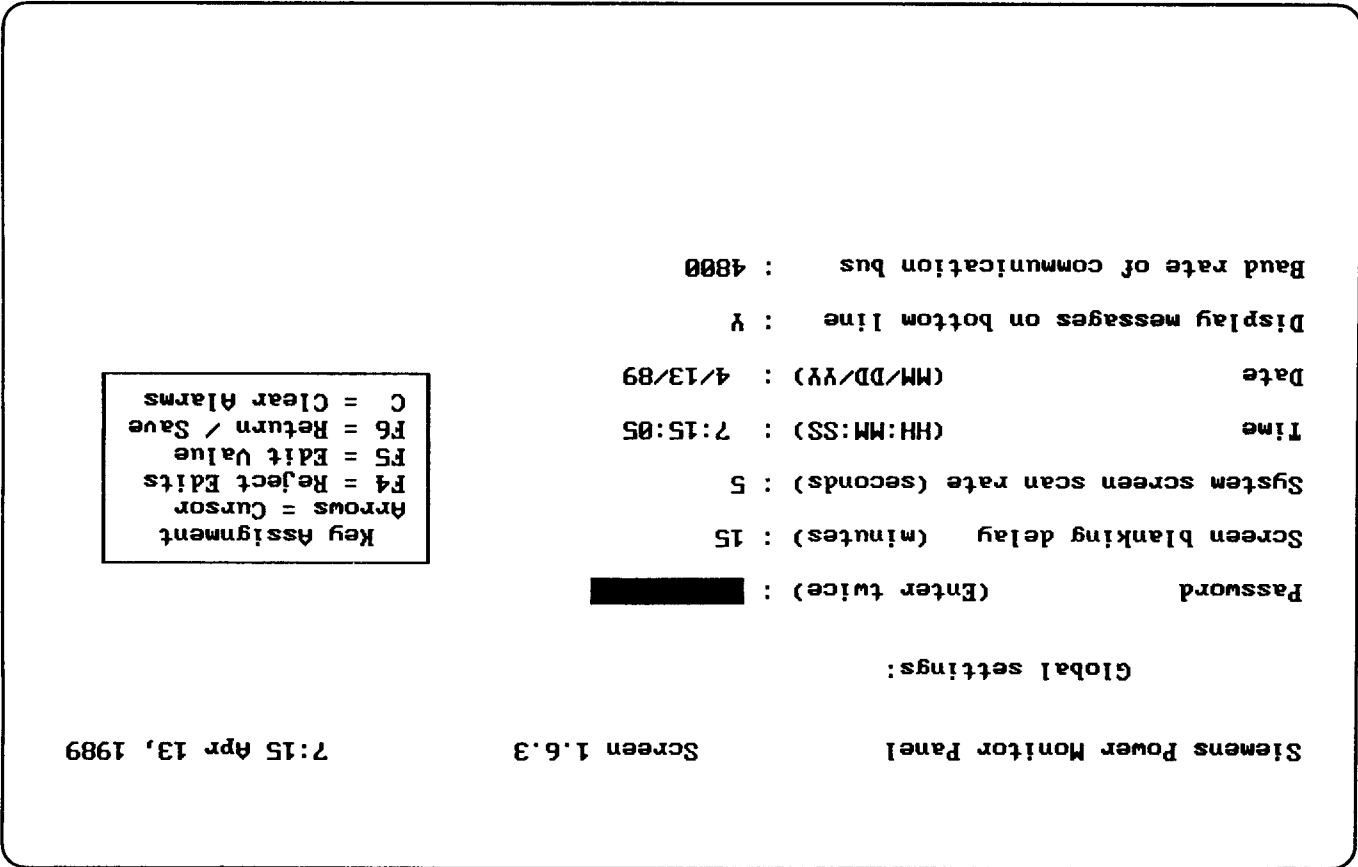
Location and Key Assignments

From the Change Configuration Menu (Screen 1.6) scroll to "Global Parameters" and press ENTER.

References

Power Monitor and Device Configuration - Adjusting Global Parameters

Scroll to one of the parameters and press F5 to edit the field.



Screen 1.7. Clear Menu

Clear Menu Description

The Clear Menu permits clearing of selected data for all devices of just single units. Devices may be highlighted using the cursor keys.

References

Clearing Device Data - Clearing Device Data

Pressing F6 will return to the Main Menu.

do so (Screen 1.8).

On the Main Menu (Screen 1), scroll to "Clear Device Data" and press ENTER. Enter the password when requested to

Location and Key Assignments

Siemens Power Monitor Panel Screen 1.7 7:02 Apr 17, 1989

Clear menu:

Breaker	Name	Type	Devices available
	MAIN A	Main	Trip unit
	LP #1	Feeder	Trip unit
	DP #1	Feeder	Trip unit
	MCC #3	Feeder	Trip unit
	SPARE	Feeder	Trip unit
	CT FAN	Feeder	Trip unit
	BOILER	Feeder	Trip unit
	HWP #1	Feeder	Trip unit
	MAIN B	Main	Trip unit
	LP #8	Feeder	Trip unit
	HWP #2	Feeder	Trip unit
	CHILL	Feeder	Trip unit
	EX FAN	Feeder	Trip unit
	AC #4	Feeder	Trip unit
	SPARE	Feeder	Trip unit
	SPARE	Feeder	Trip unit

Key Assignment

ARROWS = Cursor

1 = Clear All KWHR

2 = Clear All KVARHR

3 = Clear All Min/Max

4 = Clear All Counters

F1 = Clear Unit KWHR

F2 = Clear Unit KVARHR

F3 = Clear Unit Min/Max

F4 = Clear Unit Counter

F6 = Return

C = Clear Alarms

Screen 1.8. Enter Password Screens

Enter Password Screens

Description

This request password screen acts as a gate to the Change Configuration Menu and Clear Menu. Only those persons with password clearance may proceed. To proceed, simply key in the password and press ENTER.

Clearing Device Data

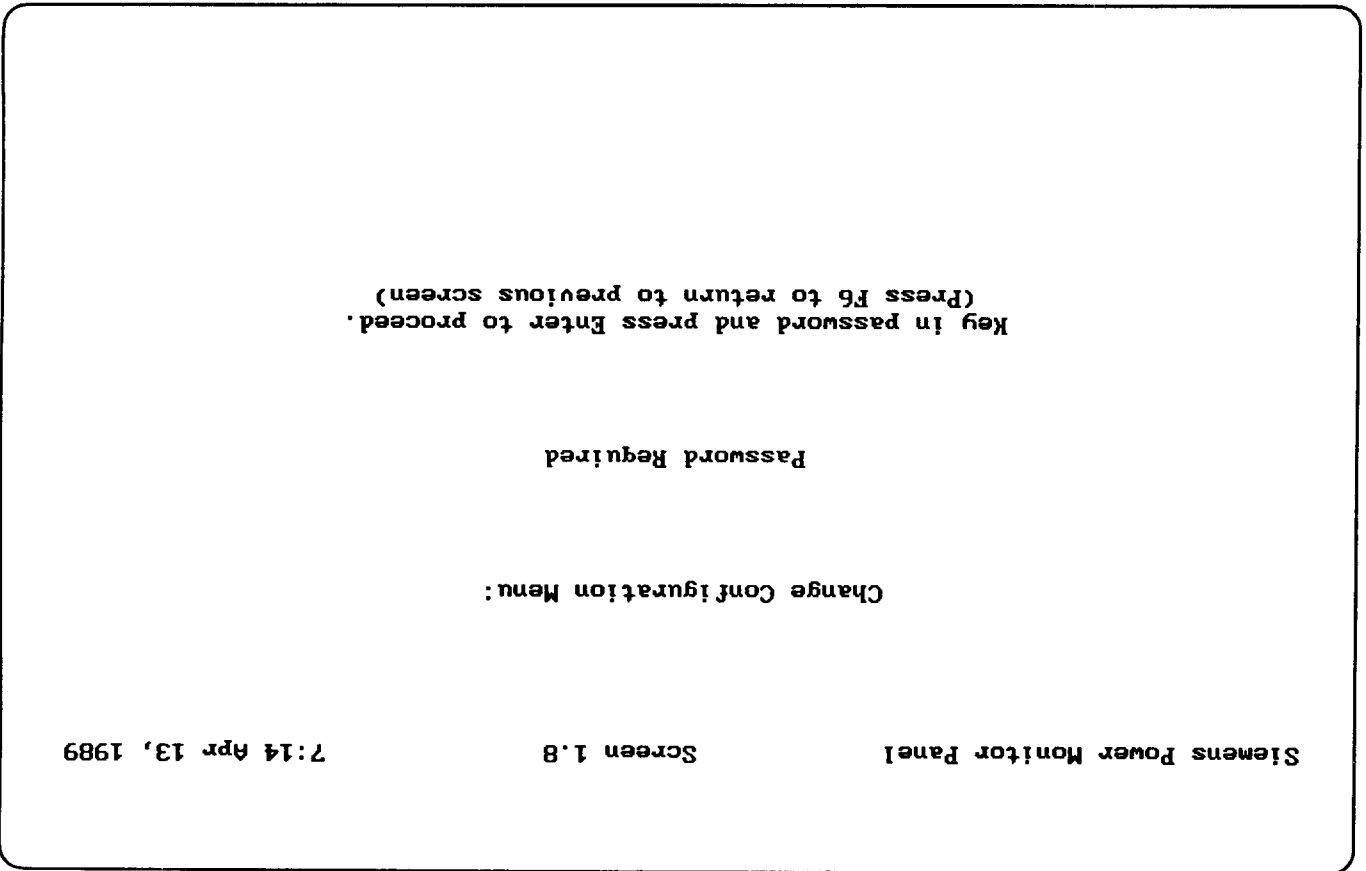
Power Monitor and Device Configuration - Changing Configuration

References

will return to the Main Menu.

From the Main Menu (**Screen 1**) scroll to Change Configuration or Clear Device Data and press ENTER. Pressing F6

Location and Key Assignments



Typical Operating Situations

Circuit breakers and their respective monitoring devices are initially configured at the factory. There will be, however, instances when the user will be required to reconfigure his system to accommodate rearrangements of breakers. These occurrences are inevitable and will most frequently occur during breaker maintenance. The purpose of this appendix is to outline some typical situations and guide the user through the steps in reconfiguring his system.

It is imperative that you read the entire User's Guide before attempting to reconfigure your system. Several functions within the configuration process have similar uses. The wrong application of these functions may disconnect monitoring devices from the communication bus. If you should have any questions regarding the use of these functions, contact your Siemens representative.

The chart at the end of Appendix B has been provided for recording address changes.

Scenario #1 - Incorrectly Assigned Communication Address

Description

The installed trip unit or power meter's communication address is different than that assigned to the cubicle as defined within the Power Monitor device configuration screen.

Reason

This situation may be the result of a single or multiple reassignment of breakers within or between several switchgear lineups. It may also be the result of misassignment of the monitoring device to the cubicle.

Solution

The solution given here assumes that all communication addresses are known via communication address labels on each device. This task is rather simple.

1. Proceed to the Breaker Configuration screen (**Screen 1.6.1.4**) of the affected breaker name.

2. Scroll to the trip unit or power meter address and press F5 to edit the address.

3. Key in the correct trip unit or power meter address of the monitoring device and press enter.

Scenario #2 - Duplicate Communication Address

Description

Two or more devices have the same device address assignments as determined from their associated device communication address labels.

Reason

The probability of this scenario occurring will be very low within the normal course of breaker maintenance or retrofit. The only time it should occur is when breakers from one Power Monitor lineup are moved to another Power Monitor lineup, or when a spare breaker is retrofitted within a given lineup. If a device address conflict occurs, it will be necessary to modify the address of at least one of the devices via the Power Monitor Program Address function.

Solution

1. The user must isolate all but one of the duplicate breakers by racking out all other breakers sharing the same address. Otherwise, two devices sharing the same address on the communication bus will cause data transmittal errors to the Power Monitor. If this problem is known prior to racking in a breaker, wait to rack the breaker in and follow the following steps.

2. Proceed to the Breaker Configuration screen (**Screen 1.6.1**). Scroll to the device address and enable the program address by pressing "A". Key in a unique address and press Enter. This will reprogram the address in the device. Note that the list of breakers on the Breaker Configuration screen (**Screen 1.6.1F255D**) contain addresses currently in use as a reference.

3. Press F2 to Test the Unit.

4. Record the new address on the device's communication address label and in the Change of Communication Address Chart at the end of Appendix B.

5. Rack in the next breaker and repeat steps 2-4.

Scenario #3 - Unknown Communication Address

Description

One or more Static Trip ILLC device communication addresses are not known.

Reason

This situation may occur if a spare breaker being placed into service either does not have an address label or has the wrong device communication address entered on its address label.

Solution

1. If more than one unknown address exists, the user must isolate all but one unknown Static Trip ILLC by racking out all other unknown breakers.

2. Proceed to the Breaker Configuration screen (Screen 1.6.1) for the breaker with the unknown Static Trip ILLC communication address.

3. Scroll to the device address and invoke the FIND ADDRESS function. The Power Monitor will sequence through all unassigned addresses. When the Static Trip ILLC with the unknown address responds, the responding address will automatically appear in the device address field. (If the address is not updated, the unknown address may be the same as an existing address. See Steps 6-8 below.)

4. Press F1 to configure the unit and then press F2 to test the unit.

5. Rack in the next breaker with an unknown Static Trip ILLC communication address.
6. If the address is not automatically updated in Step 3, the unknown address may be the same as an existing address. Each existing Static Trip ILLC must have its communication address reprogrammed. When reprogramming the units, choose a convenient sequence.

7. Rack in the breaker having the unknown trip address and follow steps 2-4 above. If the problem persists, there may be a communication error in the trip unit. Contact your Siemens representative.

Scenario #4 - Changing Sensor Ratings

Description

The assigned breaker current sensor rating has been changed.

Reason

This scenario will occur if the user has replaced the breaker's current sensors as a result of changing load requirements.

1. After the breaker is racked in and the communication address validated, select Current Sensor Rating

(Screen 1.6.1.4) and press F5 to edit the field.

2. Key in the new current sensor rating and ground sensor rating and press ENTER.

3. Press F2 to test the new configuration parameters with those of the selected Static Trip ILLC device's internal non-volatile memory. If the new parameters do not compare, then Press F1 to configure the unit and update the device's internal non-volatile memory.

Scenario #5 - Removing a Device

Description

Removing a device from the communications loop.

Reason

This situation will occur most frequently when a breaker is racked out for routine maintenance. It is imperative that the polling priority be set to ignore. Otherwise, data transmittal errors will occur at the Power Monitor.

Solution

Before racking a breaker out or disconnecting a power meter, follow steps 1 thru 4.

1. Proceed to the Breaker Configuration screen (Screen 1.6.1).

2. Scroll to the device address and press F5 to edit the field.

3. Use the arrow keys to select ignore and press enter.

4. The change in polling priority does not require reconfiguring the breaker. Press F6 twice to exit the Breaker Configuration screen.

5. Remove the power meter or rack the breaker into the test or disconnect position.

Scenario #6 - Storing Devices

Description

Storing monitoring devices for an extended period of time.

Reason

As part of preventive maintenance, it may be customary to have spare trip units and/or power meters on hand.

Solution

In order to avoid the processes of finding device addresses, Siemens recommends that all spare Static Trip IIC trip units

1. Proceed to the corresponding Breaker Configuration screen (**Screen 1.6.1.4**) and reprogram the address to the suggested default addresses.
 2. Set the polling priority to ignore. This will stop the device from being polled and will prevent data transmission errors.
 3. Rack the breaker out.
 4. Record the new address on both the address label and in the Change of Communication Address Chart.
- Before racking a breaker out, change the communication address to the appropriate address.
- have their addresses programmed to 222 and all power meters have their addresses programmed to 1000.

Error and alarm messages are given in clear, concise form. All error messages are automatically written to the event log; however, they are displayed on the bottom of the screen only when configured in Global Parameters. Some alarm messages are written to the event log automatically; the others are written only when configured to do so.

Errors and Alarms

The following list includes non-value error and alarm messages along with a brief explanation.

MESSAGE	EXPLANATION	WHAT TO DO
System scan data corrupted.	EEPROM Failure.	Contact Siemens immediately.
Event log corrupted.	EEPROM Failure.	Contact Siemens immediately.
Min/max data corrupted.	EEPROM Failure.	Contact Siemens immediately.
Polling configuration corrupted.	EEPROM Failure.	Contact Siemens immediately.
Alarm limits corrupted.	EEPROM Failure.	Contact Siemens immediately.
Alarm limits corrupted.	EEPROM Failure.	Contact Siemens immediately.
Unknown nonvolatile data type.	EEPROM Failure.	Contact Siemens immediately.
Unit configuration corrupted.	EEPROM Failure.	Contact Siemens immediately.
Global parameters corrupted.	EEPROM Failure.	Contact Siemens immediately.
Discrete inputs corrupted.	EEPROM Failure.	Contact Siemens immediately.
Discrete input alarms acknowledged.	Displayed after alarms were acknowledged on a discrete input display screen.	No response required.
Input: (name) In state: (state).	The designated discrete input changed to the active state (on/off).	Press "C" to Clear the Alarm.
Input: (name) Changed state.	The designated discrete input changed states.	Press "C" to Clear the Alarm.
Input: (name) Back to normal.	The designated discrete input changed back to normal state.	No response required.
Protective settings corrupted.	Protective settings corrupted.	Contact Siemens immediately.
Alarms acknowledged.	All (non-discrete input) data alarms were acknowledged (by pressing "C").	No response required.
Alarms reset.	Alarms were reset. (Occurs after the alarm is acknowledged and the condition corrected).	No response required.

Data Errors

When data is received but it is incorrect, it is referred to as a data error. The number accompanying the event message indicates which part of the incoming packet was in error.

Note that although a unit is named with each data error, it does not necessarily have anything to do with that unit. In fact it is more likely to be another unit that was interfering with the communications of the named unit. This information may assist in correcting hardware problems with the communications.

MESSAGE	EXPLANATION	WHAT TO DO
(Name) - Data error type 0 of (value).	Received byte when none polled is named. (Note: The named unit is not necessarily the cause of the error).	Usually self-correcting. If problem persists, check the communications bus.
(Name) - Data error type 1 of (value).	The first byte in the data pack is not 39.	Usually self-correcting. If problem persists, check the communications bus.
(Name) - Data error type 2 of (value).	The address byte is not as expected.	Usually self-correcting. If problem persists, check the communications bus.
(Name) - Data error type 3 of (value).	The address byte is not as expected.	Usually self-correcting. If problem persists, check the communications bus.
(Name) - Data error type 4 of (value).	The METER source address was wrong.	Usually self-correcting. If problem persists, check the communications bus.
(Name) - Data error type 5 of (value).	The METER destination address 1st byte was not the correct master address.	Usually self-correcting. If problem persists, check the communications bus.
(Name) - Data error type 6 of (value).	The METER destination address 2nd byte was not the correct master address.	Usually self-correcting. If problem persists, check the communications bus.
(Name) - Data error type 7 of (value).	Data count was too high. Too many bytes.	Usually self-correcting. If problem persists, check the communications bus.
(Name) - Data error type 8 of (value).	Received wrong checksum.	Usually self-correcting. If problem persists, check the communications bus.

Appendix C: Error and Alarm Messages

No Response Errors

If data is expected but none is received, it is referred to as a no response error. The number accompanying the event message indicates which part of the incoming packet was expected but not received.

MESSAGE	EXPLANATION	WHAT TO DO
(Name) - No response type 1.	No response from the slave device (timestamp is time of first failure to respond - 3 must occur contiguously to alarm)	Check communications loop for breaks.
(Name) - No response type 2 of (value).	The slave stopped sending response packet after sending the number of bytes indicated.	Check communications loop for breaks.

“Alarm On” Messages

“Alarm On” messages appear when an alarm goes active, for example when phase voltages exceed a defined limit. The following list contains the possible alarms. The messages are self-explanatory. (Name) indicates the name of the breaker, (value),(ph1/ph2/ph3), and (gnd) indicate the value, phase values, and ground current, respectively, at the time of the event.

Single Value Alarms

Power Meter

(Name) - Meter: KVA of (value) too low

(Name) - Meter: KVA of (value) too high

(Name) - Meter: KW of (value) too low

(Name) - Meter: KW of (value) too high

(Name) - Meter: KVAR of (value) too low

(Name) - Meter: KVAR of (value) too high

(Name) - Meter: KWD of (value) too low

(Name) - Meter: KWD of (value) too high

(Name) - Meter: PF of (value) too low

(Name) - Meter: PF of (value) too high

(Name) - Meter: Frequency of (value) too low

(Name) - Meter: Frequency of (value) too high

Trip Unit (Name) - Trip Unit: Ground amps of (value) too low

(Name) - Trip Unit: Ground amps of (value) too high

Three Value Alarms

Power Meter

(Name) - Meter: Volt unbalance of (ph1/ph2/ph3) too low

(Name) - Meter: Volt unbalance of (ph1/ph2/ph3) too high

(Name) - Meter: Volts of (ph1/ph2/ph3) too low

(Name) - Meter: Volts of (ph1/ph2/ph3) too high

Four value alarms

Trip Unit

(Name) - Amp unbalance of (ph1/ph2/ph3/) GND (gnd) too low

(Name) - Amp unbalance of (ph1/ph2/ph3/) GND (gnd) too high

high

(Name) - Amp of (ph1/ph2/ph3) GND (gnd) too low

(Name) - Amp of (ph1/ph2/ph3) GND (gnd) too high

(Name) - Trip Unit: Long time Pickup (ph1/ph2/ph3) GND (gnd)

(Name) - Trip Unit: Short time/GND pickup (ph1/ph2/ph3) GND (gnd)

(Name) - Trip Unit: Amp unbalance Pickup (ph1/ph2/ph3) GND (gnd)

Non-Data Messages

(Name) - Trip Unit: Watchdog Fail
(Name) - Trip Unit: Breaker open

Errors which are timestamped with the time of the trip

(Name) - Trip Unit: Breaker Failure (ph1/ph2/ph3) GND (gnd) Amp unbalance

(Name) - Trip Unit: Trip (ph1/ph2/ph3) GND (gnd) Amp unbalance

(Name) - Trip Unit: Breaker Failure (ph1/ph2/ph3) GND (gnd) Ground fault

(Name) - Trip Unit: Trip (ph1/ph2/ph3) GND (gnd) Ground fault

(Name) - Trip Unit: Breaker Failure (ph1/ph2/ph3) GND (gnd) Short circuit

(Name) - Trip Unit: Trip (ph1/ph2/ph3) GND (gnd) Short circuit

(Name) - Trip Unit: Breaker Failure (ph1/ph2/ph3) GND (gnd) Overload

(Name) - Trip Unit: Trip (ph1/ph2/ph3) GND (gnd) Overload

‘‘Alarm Off’’ Messages

‘‘Alarm Off’’ messages appear when an alarm condition returns to normal. The following list contains the possible alarms. The messages are self-explanatory. (Name) indicates the name of the power meter or trip unit. (value),(ph1/..), and (gnd) indicate the value, phase value, and ground current, respectively, at the time of the event.

Single Value Alarms

Power Meter

(Name) - Meter: KVA of (value) was max - now within limits

(Name) - Meter: KVA of (value) was min - now within limits

(Name) - Meter: KW of (value) was max - now within limits

(Name) - Meter: KW of (value) was min - now within limits

(Name) - Meter: KVAR of (value) was max - now within limits

(Name) - Meter: KVAR of (value) was min - now within limits

(Name) - Meter: KWD of (value) was max - now within limits

(Name) - Meter: KWD of (value) was min - now within limits

(Name) - Meter: PF of (value) was max - now within limits

(Name) - Meter: PF of (value) was min - now within limits

(Name) - Meter: Ground amps of (value) was max - now within limits

(Name) - Meter: Ground amps of (value) was min - now within limits

Trip Unit:

(Name) - Trip Unit: Amp % capacity of (value) was max - now within limits

(Name) - Trip Unit: Amp % capacity of (value) was min - now within limits

Three Value Alarms

Power Meter

(Name) - Meter: Volt unbalance of (ph1/ph2/ph3) was max - now within limits

(Name) - Meter: Volt unbalance of (ph1/ph2/ph3) was min - now within limits

(Name) - Meter: Volt of (ph1/ph2/ph3) was max - now within limits

(Name) - Meter: Volt of (ph1/ph2/ph3) was min - now within limits

Four Value Alarms

Trip Unit

(Name) - Amp unbalance of (ph1/ph2/ph3) GND (gnd) was max - now within limits

(Name) - Amp unbalance of (ph1/ph2/ph3) GND (gnd) was min - now within limits

(Name) - Amp of (ph1/ph2/ph3) GND (gnd) was max - now within limits

(Name) - Amp of (ph1/ph2/ph3) GND (gnd) was min - now within limits

Appendix C: Error and Alarm Messages

Non-Data Messages

(Name) - Trip Unit: Watchdog Pass

(Name) - Trip Unit: Breaker closed

(Name) - Trip Unit: Long time Pickup inactive

(Name) - Trip Unit: Short time/GND Pickup inactive

(Name) - Trip Unit: Amp unbalance Pickup inactive

(Name) - Trip Unit: No response has been rectified

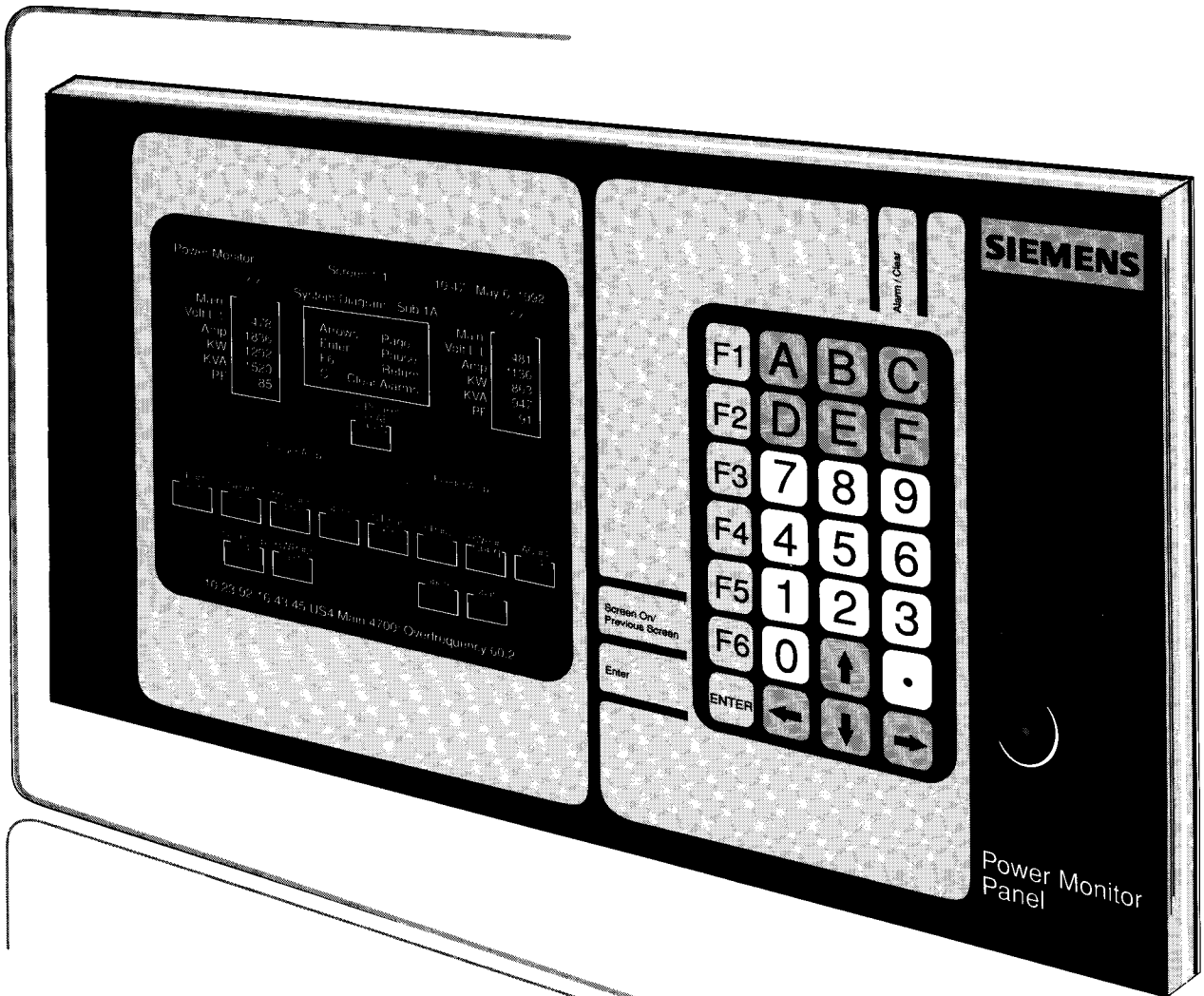
(Name) - Trip Unit: Data error has been rectified

SIEMENS

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SIEMENS

Power Monitor™ Display and Monitoring Unit Operator's Manual





DANGER

Hazardous voltages are present in the equipment that will cause severe personal injury and equipment damage. Always de-energize and ground the equipment before maintenance. Maintenance should be performed only by qualified personnel. The use of unauthorized parts in the repair of the equipment or tampering by unqualified personnel will result in dangerous conditions which can cause severe personal injury or equipment damage. Follow all safety instructions contained herein.

Circuit breaker indicators shown in this booklet are for illustration purposes only. Circuit breakers are to be installed in "Discharged" and "Open" positions only.

IMPORTANT

The information contained herein is general in nature and not intended for specific application purposes. It does not relieve the user of responsibility to use sound practices in application, installation, operation, and maintenance of the equipment purchased. Siemens reserves the right to make changes in the specifications shown herein or to make improvements at any time without notice or obligation. Should a conflict arise between the general information contained in this publication and the contents of drawings or supplementary material or both, the latter shall take precedence.

NOTE

***Authorized and qualified personnel—**

For the purpose of this manual a qualified person is one who is familiar with the installation, construction or operation of the equipment and the hazards involved. In addition, he has the following qualifications:

- (a) **is trained and authorized** to de-energize, clear, ground, and tag circuits and equipment in accordance with established safety practices.
- (b) **is trained** in the proper care and use of protective equipment such as rubber gloves, hard hat, safety glasses or face shields, flash clothing, etc., in accordance with established safety practices.
- (c) **is trained** in rendering first aid.

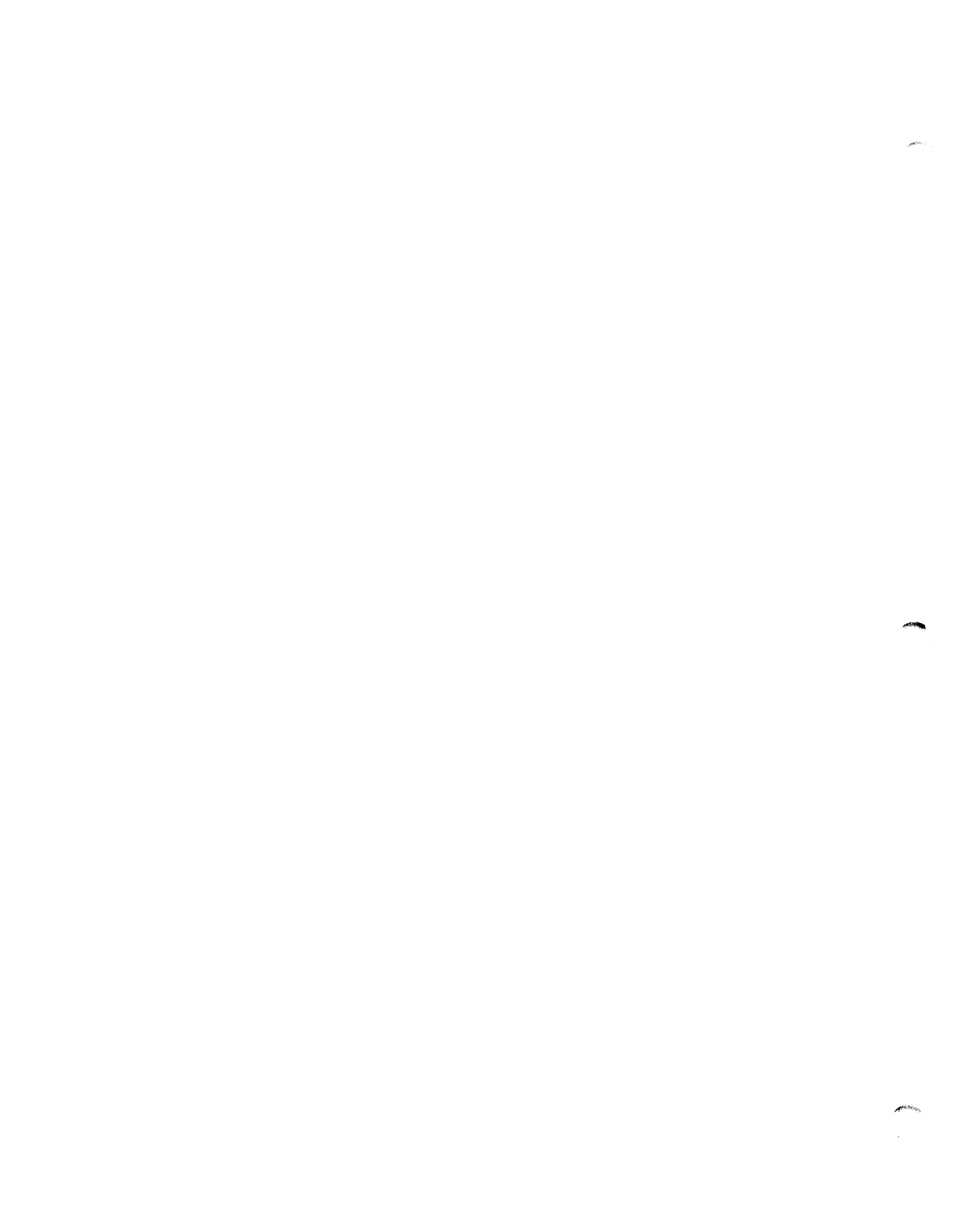
SUMMARY

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to your local sales office.

The contents of this instruction manual should not become part of or modify any prior or existing agreement, commitment or relationship. The sales contract contains the entire obligation of Siemens Energy & Automation, Inc. The warranty contained in the contract between the parties is the sole warranty of Siemens Energy & Automation, Inc. Any statements contained herein do not create new warranties or modify the existing warranty.

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1.1 About This Manual

This operator's manual is intended to provide you with all the information you need to operate the Siemens Power Monitor™ display and monitoring unit, with software version 3.13 or 3.2. In addition to describing the various tasks of operation, the manual offers general information about the Power Monitor unit and the Siemens devices it supports, as well as extensive information on configuring these devices on your power distribution system using the Power Monitor unit.

The two versions of the software discussed in this manual are essentially the same, with the exception that version 3.2 supports three additional devices: the 4300 power meter, the Sensitrip® III electronic trip unit, and the Type SB Encased Systems Breaker. Discussion throughout this manual pertains to *both* versions of the software, *unless otherwise indicated in the text*.

For help in finding information in this manual, consult the following table.

If you want to learn about . . .	Read
features of the Power Monitor unit	Section 1
devices supported by the Power Monitor unit	Section 1
basic operation of the Power Monitor unit	Section 2
displaying system and device information	Section 2
configuring your system and devices	Section 3
manual control of field devices	Section 4
error and alarm messages	Appendix A
basic operating scenarios	Appendix B
dimensions for installing the Power Monitor unit	Appendix C

This manual assumes that you are familiar with the operation of the devices on your system, so no attempt is made to describe their functions in any detail. Instead, when working with the Power Monitor unit, you need to refer to the documentation for the specific field devices. The following list contains documents you might need during your operation of the Power Monitor unit, along with the Siemens document identification number:

- *Electronic Trip Unit for SB Encased Systems Breakers* (bulletin no. 2.20-3A)
- *Static Trip III* (manual no. SG-3118-01)
- *SCOR Overcurrent Protective Relay* (manual no. SG-9228-01)
- *Electronic Metering Package: 4700 Power Meter* (manual no. SG-6018)
- *Electronic Metering Package: 4300 Power Meter* (manual no. SG-6038)
- *SAMMS™ Siemens Advanced Motor Master System* (manual no. CP3290)
- *Multiplexer Translator (MT)* (bulletin no. 2.21-1A)
- *SB Encased Systems Breakers: 400-2000 Ampere Frame Rating* (bulletin no. 2.20-4A)
- *Installing the ACCESS System* (manual no. SG-6028)

The remainder of this introduction describes

- the ACCESS™ system
- the Power Monitor unit
- devices supported by the Power Monitor unit
- communications with the Power Monitor unit

1.2 An Overview of the ACCESS™ System

The Siemens Power Monitor display and monitoring unit is an integral part of the ACCESS system of smart devices that monitor and control the distribution of power. This system begins at the field level with protective and metering devices that have built-in communications capabilities. They transmit information and receive instructions over an RS-485 communications bus, which connects them to a supervisory device such as the Power Monitor unit.

In addition to collecting information from as many as 64 field devices, the Power Monitor unit allows you to display information, program devices, establish and monitor alarms, and to log device and system events.

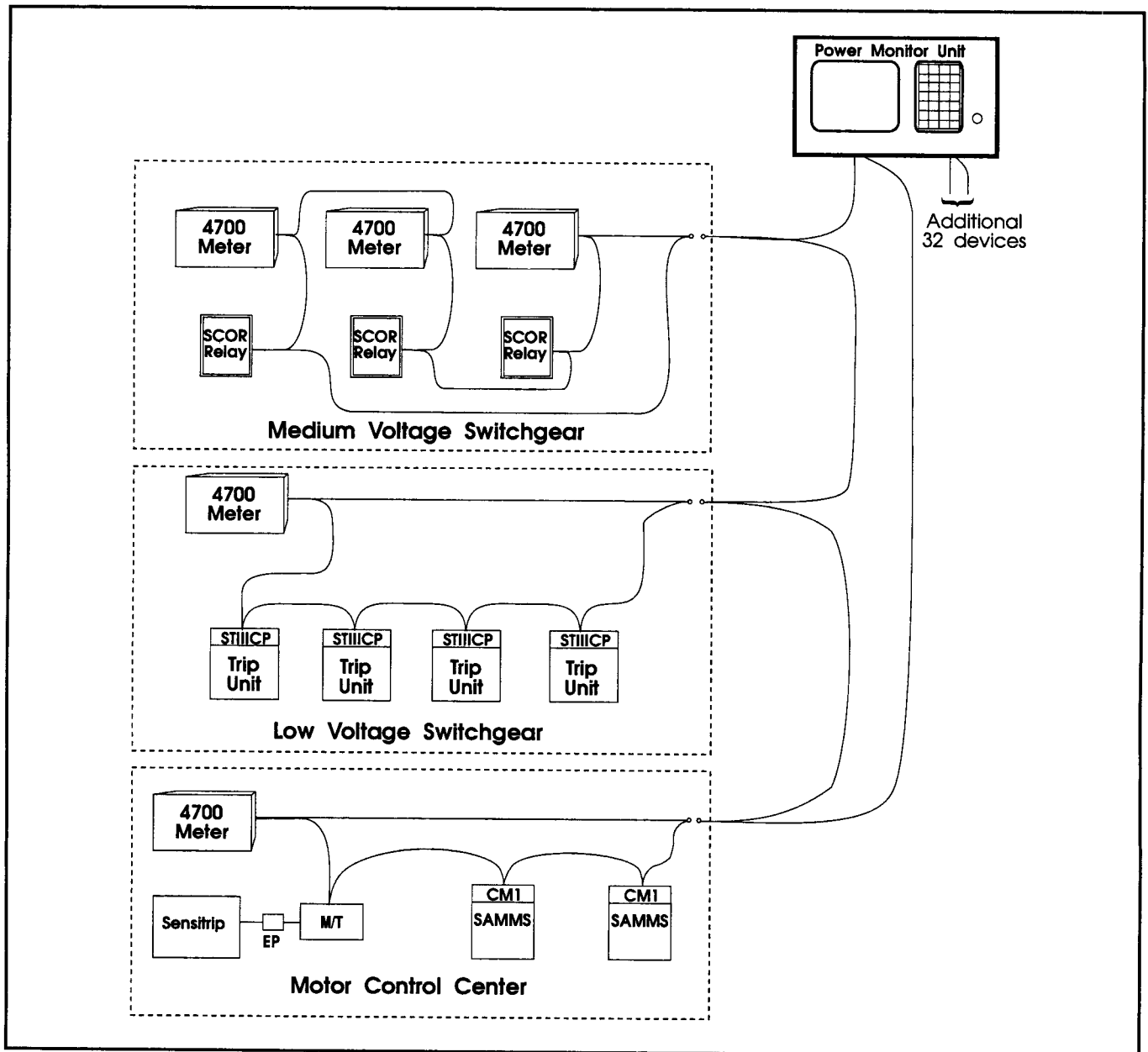
Finally, you can connect one or more Power Monitor units to an ACCESS Host PC, which can monitor and control an electrical system with as many as 40 Power Monitor units and more than 2500 field devices.

The illustration on the next page shows how the Power Monitor unit fits into the ACCESS system.

1.3 About the Power Monitor Unit

The Siemens Power Monitor display and monitoring unit uses microprocessor technology to display real-time data and the

1 Introduction



Typical ACCESS System Controlled by a Power Monitor Unit

status of discrete inputs, to log system events, and to configure circuit protection and protective relaying for utility, commercial, and industrial AC power systems.

The Siemens Power Monitor System consists of a Power Monitor display and monitoring unit connected to field devices by an industry-standard, shielded, twisted-pair EIA RS-485 communications bus cable. You can connect as many as 64 Siemens microprocessor-controlled field devices to a single

Power Monitor unit. Siemens' packet-based SEAbus and SEAbus Plus communications protocols provide for high integrity in the data received at the Power Monitor unit and Host PC.

The Power Monitor unit is a microprocessor-based industrial computer. It executes a supervisory program to communicate with field devices. Operators use its sealed-membrane keypad to acquire data and to program the Power Monitor unit

and the devices it supports. The Power Monitor unit stores data in nonvolatile memory and displays information on a 9-inch monochrome monitor.

The Power Monitor unit allows you to program any of the field devices it monitors, and it displays a variety of information about your system and the devices it comprises. In addition to complete information about the way your system is configured, you can use the Power Monitor unit to program or display

- up to 16 one-line diagrams of portions of your system
- detailed and summary data for each device
- minimum and maximum value tables
- alarm limits
- protective settings
- an integrated, sequential log of device and system events and alarm conditions
- a system diagnostic log
- discrete inputs attached to system devices
- manual control of field devices

When the Power Monitor unit is powered up, it performs a brief self-check before becoming operational. Once it is running, the Power Monitor unit continuously polls the field devices at the rate of about three devices per second, collecting real-time data that it stores in its memory. As it receives data from each device, it checks the data against the configured limits for that device; if the data exceeds any of the limits you have established for your system, the Power Monitor unit generates an alarm. It records the alarm in its Event Log, where it stores information about the 64 most recent alarms and events. If you choose, the Power Monitor unit will display the single most recent alarm or event message at the bottom of the active screen. All real-time data is updated every few seconds by the Power Monitor, regardless of which data is displayed on the screen.

The Power Monitor panel has a number of features that make it easy to program and monitor your system. These features are described next.

1.3.1 Power Monitor Screens and Screen Numbering

The Power Monitor unit displays information on an industrial graphics screen. A monochrome screen is standard. A user-configurable "Screen Blanking Delay" helps to extend the life of the display by turning it off when it is not in use. (You set the Screen Blanking Delay on the Global Parameters screen as described in section 3.1 below.)

Power Monitor screens have a number of features common to

all screens. Each one has a unique screen number at the center of the top line, and to the right of that number is the present time and date. Virtually all screens have a Key Assignment box that tells you which keys perform the available functions for that screen. (Some screens do not have enough room to accommodate the box, and the function keys are defined on a line at the bottom of the screen.)

The screens' unique identification numbers reflect the hierarchical structure of the Power Monitor program. For example, suppose you want to display data for some device on your system. From the Main Menu (Screen 1) you select the *second* item from the menu, "Display Device Data." The subsequent screen is entitled "Display Device Data Menu," *which is numbered 1.2*. The second digit of the screen number reflects your choice of the second item from the Main Menu, and all subsequent Device Data screens are numbered beginning with 1.2.

To continue with the example, you next move the cursor to select a particular device and press a function key to display Summary (F1), Detail (F2), or Min/Max (F3) Data for that device. Let's say you want to look at the Detail Data screen for a 4700 power meter. When you select the 4700 and press F2, the Detail Data screen appears and is numbered 1.2.2.5. The second "2" reflects your choice of the *second* function from the Key Assignment box by pressing F2. On any screen with a four-digit to six-digit number, the last digit (in this case a "5") indicates the device's system number. The following list shows each device supported by the Power Monitor unit, according to its system device number:

- 1 — 3600 power meter
- 2 — Static Trip III™C trip unit
- 3 — SAMMST™ device
- 4 — SCOR relay
- 5 — 4700 power meter
- 6 — Static Trip IIICP trip units
- 7 — Sensitrip III electronic trip unit
- 8 — Type SB encased systems breaker
- 9 — 4300 power meter

1.3.2 The Keypad, Key Assignments, and Keyboard Connector

The sealed-membrane keypad on the front of the Power Monitor unit allows you to control the display and program the devices connected to it. Both tactile and audible feedback acknowledge each key stroke.

You use the keypad primarily to execute the various functions possible on each Power Monitor screen. These functions are assigned to Function keys (F1-F6) or Alphabet keys (A-F).

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Those functions that appear on more than one screen are given the same key assignment on every screen whenever possible; however, since functions vary from screen to screen, key assignments occasionally vary as well, so be sure to check the Key Assignment box on each screen before you execute any function.

A few keys that are assigned the same function on virtually every screen are listed here:

- Arrows = Cursor (move the cursor and page forward or backward; sometimes used to view snapshot or trip log data)
- ENTER = Select (select an item or enter data)
- F6 = Return/Save (return to the previous screen and save an entry)
- C = Clear Alarms

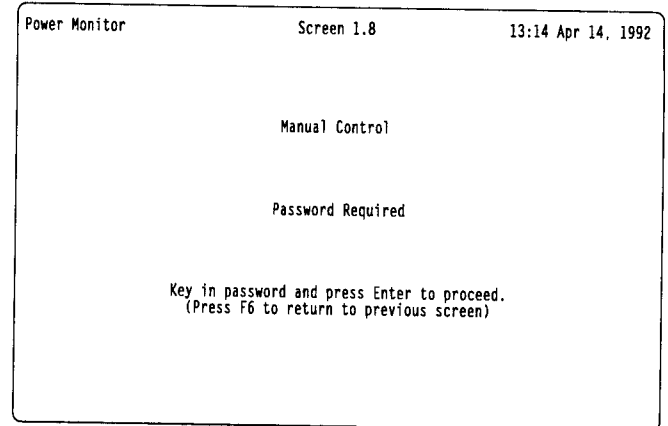
On the right side of the front panel of the Power Monitor unit is located a covered socket, through which you can connect an IBM-compatible XT keyboard. Use a full-size keyboard for setting up or changing the configuration of your system, because you can use the entire set of upper-case and lower-case characters to enter more complete information about many aspects of the system. This feature is particularly useful for entering names during configuration, since the Power Monitor keypad offers a limited selection of alphabetic characters.

1.3.3 Password Protection

Anyone can use the Power Monitor unit to *display* any information about the system; however, much of the *operation* of the Power Monitor unit is password protected. Before it is shipped from the factory, each Power Monitor unit is given the password "1." You can keep this password for easy access to your system, or you can change it for greater security. To change the password, you simply go to the Global Settings screen and enter a new password as instructed.

Note: If you program your system's password with a full-size keyboard, be sure that your password contains only characters found on the unit's keypad, so that you will not need the keyboard each time you are required to enter the password.

Whenever the operator selects any task that might lead him or her to change a setting, to operate a device, or to alter data, a screen appears requiring him to enter the password to proceed. The title on the Password screen varies depending upon where you are in the program, but each password screen is essentially the same. Here is an illustration of the Password screen (1.8) that appears when you select Manual Control from the Main Menu:



Screen 1.8. Typical Password Screen

Whenever you encounter the Password screen, type in the password and press Enter to continue with the operation. If you do not have the password, contact someone in your company who does have the password. If you lose your password, a representative from your company can contact Siemens for a password that will allow access to your system.

1.3.4 Nonvolatile Memory

The Power Monitor unit stores your critical data in nonvolatile EEPROM memory to guard against a loss of power without using batteries. The following kinds of data are stored in the EEPROM:

- all configuration information for your system and devices
- the system's global parameters
- tables of minimum and maximum values
- the system's Event Log

1.4 Devices Supported by the Power Monitor Unit

The Siemens Power Monitor unit, version 3.2, supports nine different Siemens field devices. (Version 3.13 supports only six kinds of field device.) These devices are listed here and then briefly described below:

- 3600 power meters
- 4300 power meters
- 4700 power meters
- Static Trip IIC trip units

- Static Trip IIICP trip units
- Siemens Advanced Motor Master System (SAMMS)
- Siemens Communicating Overcurrent Relay (SCOR)
- Sensitrip III electronic trip units (version 3.2 only)
- Type SB systems breakers (version 3.2 only)

In addition to these field devices, you can connect the Power Monitor unit to a Siemens ACCESS host PC or SIESERVE™ software to monitor your system from a remote location.

All devices communicate with the Power Monitor unit via the Siemens Energy and Automation communications protocol (SEAbus). For more information on communications, refer to the “Communications” section later in this Introduction, or refer to *Installing the ACCESS System* (manual no. SG-6028).

1.4.1 3600 Power Meters

The Siemens 3600 power meter measures true RMS line-to-line voltage, RMS line-to-neutral voltage, RMS phase current, KVA, KW, KW Demand, KWHR, KVAR, KVARHR, power factor, and frequency. The 3600 is available with or without its own display and keypad.

1.4.2 4300 Power Meters

The 4300 power meter is a three-phase meter designed as an alternative to full-featured digital instrumentation packages. It provides high accuracy, high reliability, high transient surge and hipot-withstand capabilities. The 4300 meter measures true RMS line-to-neutral voltage and average voltage, RMS line-to-line voltage and average voltage, RMS phase current and average current, three-phase KW and total accumulated KWH, KW demand and maximum KW demand, and power factor.

1.4.3 4700 Power Meters

The 4700 power meter is designed to replace multiple traditional analog metering devices. It measures true RMS line-to-line voltage and average voltage, RMS line-to-neutral voltage and average voltage, RMS phase current and average current, amp demand, KVA, KW, KW Demand, KWHR, KWHR Reverse, KVAR, KVARHR, power factor, and frequency.

The 4700 accepts inputs from current transformers and voltage transformers directly, thereby providing full power metering. Other available options offer further monitoring capability by accepting

- up to four discrete inputs
- a fourth current input

- analog input
- analog output
- KWHR and KVARHR pulsed outputs
- three programmable relay outputs
- snapshot memory

1.4.4 Static Trip IIIC and IIICP Trip Units

The Power Monitor unit supports both the Siemens Static Trip IIIC and IIICP trip units (though it communicates with them in different ways and treats them as separate devices). These devices provide overcurrent protection and RMS phase current sensing. They also measure ground current, phase and average phase voltages, phase and average phase currents, phase and average phase voltages, both line-to-line and line-to-neutral voltages, KW, KW Demand, KWHR, KWHR Reverse, KVA, KVAR, KVARHR, power factor, and frequency. Any of these measured parameters can be programmed to activate an alarm, through an output relay, based on the threshold and delay setpoints that you establish. In addition to all these features, the Static Trip IIICP model adds extended protective features to the basic trip device.

The Static Trip IIIC and CP trip units also allow you to display data locally. The local port drives a breaker display unit (BDU) that can be mounted on the front of the circuit breaker or on an adjacent compartment door.

CAUTION: The Static Trip IIIC and Static Trip IIICP trip units are treated as separate devices by the Power Monitor, so you must be careful to distinguish between models when configuring these devices on your system. If you fail to configure your Static Trip III trip units according to the instructions in section 3.3.4 of this manual, they will not communicate properly with the Power Monitor unit. Refer to section 3.3.4 below for complete information on how to configure Static Trip III trip units from the Power Monitor unit.

1.4.5 SAMMS Motor Protective Relays

The Siemens Advanced Motor Master System (SAMMS) is a user-programmable motor control and protection device. It is suitable for most NEMA/EEMAC-size, low-voltage motors. The SAMMS device is able to detect jams, loss of load, loss of phase, and phase unbalance; it also provides process current warning and overload protection accurate to $\pm 5\%$. A SAMMS device can support four remote 120 VAC inputs and is compatible with all programmable logic controllers (PLCs). SAMMS devices can be configured for both local or remote control.

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1.4.6 SCOR Relays

The Siemens Communicating Overcurrent Relay (SCOR) is used with circuit breakers to provide overcurrent, short circuit, and ground fault (optional) protection for medium-voltage systems. SCOR relays also collect a variety of information, including relay status and trip data, as well as real-time RMS data for phase amps, ground amps, and amp demand for each phase. All SCOR relay protective settings (except for tap selectors) can be configured from the Power Monitor unit.

1.4.7 Type SB Systems Breakers and Sensitrip III Electronic Trip Units

The Type SB systems breaker and the Sensitrip III electronic trip unit are viewed similarly by the Power Monitor unit. Together they provide overcurrent protection, RMS current sensing, ground fault sensing, and protection against long-time, short-time, instantaneous, and ground faults. The Type SB systems breakers are available in three frame sizes that cover a rating range from 400 to 4000 amps.

1.4.8 ACCESS Host PC

Siemens offers the ACCESS Host PC, a personal computer complete with software and communications hardware, to which you can connect up to 40 Power Monitor units. One Host PC therefore allows you to monitor over 2500 field devices. Using the Host PC increases your capability of remote monitoring and data logging.

Communication between the Power Monitor unit and Host PC comes through their RS-232 ports. The normally short distance for RS-232 communications is extended through the use of short-haul modems between the two devices, extending the distance to at least four miles.

Contact Siemens if you want information about adding the Host PC to your system.

1.5 Communications

Data passes between the Power Monitor unit and field devices via the Siemens Energy and Automation communications protocol (SEAbus). The SEAbus protocol operates on a shielded, twisted-pair, EIA RS-485 communications cable. The cable's inherent electrical characteristics provide reliable transmission of data between devices, accommodating distances as great as 4000 feet.

The communications bus is normally a closed-loop daisy chain connecting field devices to the Power Monitor unit. This configuration prevents the disruption of communications as a result of a single break in the loop.

Each device has a valid range of communication addresses that are accepted by the Power Monitor unit. (The operator's manual for each device discusses the acceptable addresses for that device.) Each device on the communications loop is assigned a unique communication address, which is recorded in its nonvolatile memory.

Note: Duplicate communication addresses may occur during routine field maintenance. If they do, the communication address of any device can be reprogrammed from the Power Monitor unit.

The Power Monitor unit controls activity on SEAbus by issuing a series of "master requests." In issuing these commands, the Power Monitor unit interrogates (or polls) every device connected to it through the communications bus. The device recognizes its unique address in the command and sends the requested data back to the Power Monitor unit. This "request data/send data" scenario is performed continuously for each field device connected to the Power Monitor unit.

2 Displaying System and Device Information

During normal, day-to-day operation of your power distribution system, you use the Power Monitor unit simply to display information about the system as a whole and about the devices connected to it, to keep track of how your system is functioning. This section tells you how to display the screens you want, to get any information you need from your system. It discusses the following specific kinds of information you can display:

- system diagrams
- device data
- the Event Log
- discrete inputs
- system and device configuration

In addition, this section also tells you how to clear certain data quantities from the devices on your system. Before discussing specific information available to you through the Power Monitor unit, the next section describes some basic operating procedures.

2.1 Basic Operation of the Power Monitor Unit

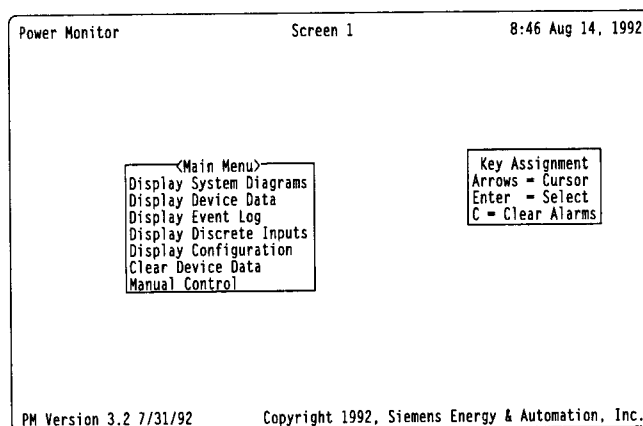
This section describes a few basic procedures for operating the Power Monitor unit. Specifically, it describes powering up, selecting from the Main Menu, and selecting and navigating among screens.

2.1.1 Powering Up

The Power Monitor unit's On/Off switch is located on the unit's rear panel. When you turn on the Power Monitor unit, it performs a self-check that lasts about 15 seconds. During the self-check you will see various messages and test patterns as it checks its memory. These patterns and messages are followed by a "Powering up - Stand by" message, after which the Main Menu screen is displayed.

2.1.2 About the Main Menu

The Main Menu (screen 1) appears automatically at the end of the power-up sequence. It is the highest level of access to the information and functions of the Power Monitor unit, and the list of choices on the Main Menu represent the main functions and areas of information provided by the Power Monitor unit. The following illustration shows the Main Menu screen.



Screen 1. The Main Menu

As you can see on the Main Menu, the primary function of the Power Monitor unit is to display the information it collects from your system, but you can also use the Power Monitor unit to configure the field devices attached to it. In addition, you can clear, or reset, some data quantities. All of these functions are described in section 2.

To make a selection from the Main Menu, you use the Arrow keys to position the cursor on the information or function you want and then press the Enter key. Upon making the selection, you begin to move through a series of submenus and screens to the screen(s) that offer the information or functions you need. You can return to the Main Menu at any time during operation of the Power Monitor unit simply by pressing F6 repeatedly to move up through the hierarchy of screens. The next section tells you more about getting the information you need from the Power Monitor unit.

2.1.3 Selecting and Navigating Among Screens

Navigating among the screens of the Power Monitor program is easy. You just position the cursor on a selection from a menu or list and press one of the function keys designated in the Key Assignment box. To return to previous screens, just press F6 repeatedly until you get to the screen you want.

Note: Remember that the numbers at the top of each screen help you to navigate by telling you where you are in the program.

2 Displaying System and Device Information

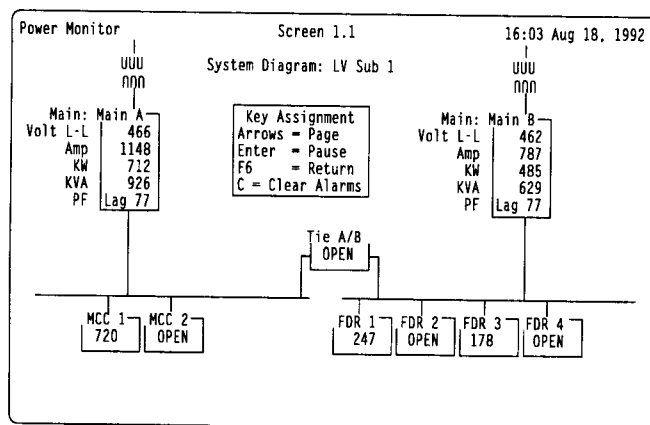
2.2 Displaying System Diagrams

This section tells you how to display your system one-line diagrams and how to interpret the symbols in the diagrams that represent various components of your system. Before you can view any diagrams, they must first be created (or configured) on the Power Monitor unit. Configuring diagrams is accomplished elsewhere in the Power Monitor unit's program; however, if your Power Monitor unit was installed as part of a system you purchased from Siemens, your system diagrams have probably been configured for you at the factory, and you can view them immediately. (If you need to configure or change system diagrams, refer to section 3.7, "Defining System Diagrams.")

System diagrams are one-line delineations of your electrical system with symbols that represent the various components. The Power Monitor unit can store up to 16 system diagrams. Single-main breaker diagrams may have up to 16 feeder circuits plus one optional tie circuit. Double-main diagrams may have up to 20 feeder circuits (with each of the two mains having up to 10 feeder circuits) plus one optional tie circuit.

To display your system diagrams, follow these steps:

1. Select "Display System Diagrams" from the Main Menu (screen 1). The first of your system diagrams appears:



Screen 1.1. Typical System Diagram

All system diagram screens are numbered 1.1; they are distinguished from one another by the names given them when they are first defined. These names appear on the top line of each screen.

2. The Power Monitor unit automatically scrolls through your system diagrams at the rate established in the Global Settings (screen 1.5.3). Press the Enter key to pause the display on any diagram. Press Enter again to resume scrolling at the programmed rate. Use the Arrow keys to scroll through the diagrams manually.

3. When you finish viewing system diagrams, press F6 to return to the Main Menu screen.

Boxes in the diagrams depict the main, feeder, and tie circuits on your system. Horizontal lines represent buses. Diagrams show the average amps for each feeder circuit and the tie circuit. For main circuits, the diagram also shows voltage, KW, KVA, and power factor if a device on the circuit measures them. The diagrams also tell you if a breaker is open on a circuit by displaying "OPEN" within the box. Bold and blinking display attributes notify you of an active alarm on the circuit.

2.3 Displaying Device Data

The Power Monitor unit displays power system data originating from the field devices it supports. For all field devices on your system, you can display Summary Data, Detail Data, and Minimum/Maximum Values. For some devices, you can also view Trip Logs or Snapshot Logs. (Trip Logs and Snapshot Logs are described in section 2.3.1 below.) To view data from any device on your system, follow these steps:

1. Select "Display Device Data" from the Main Menu (screen 1). This Device Data Menu appears:

Power Monitor
Screen 1.2
8:48 Apr 14, 1992
Display Device Data Menu:

Name	Devices Available
Main A	4700 STIIIC
Main B	4700 STIIIC
MCC 1	STIIICP
MCC 2	STIIICP
Feeder 1	STIIICP
Feeder 2	STIIICP
Feeder 3	STIIICP
Feeder 4	STIIICP
Tie A/B	STIIICP

Key Assignment
Arrows = Cursor
F1 = Summary Data Screen
F2 = Detail Data Screen
F3 = Min/Max Data Screen
F6 = Return
C = Clear Alarms

Screen 1.2. Display Device Data Menu

2. Use the Up and Down Arrow keys to position the cursor on the circuit that encompasses the device for which you want to display data. Then use the Left and Right Arrow keys to position the cursor on the particular device.
3. According to the Key Assignment box, press F1 to view the device's Summary Data, F2 for the Detail Data, or F3 for the Min/Max Data.
4. When you finish viewing the data on a screen, press F6 to return to the Display Device Data Menu.
5. Repeat steps 2, 3, and 4 to view any kind of data available from any other devices on your system.

2 Displaying System and Device Information

- When you finish viewing data, press F6 to return to the Display Device Data Menu, and press F6 again to return to the Main Menu.

Regardless of which kind of data or which device you are viewing, the real-time data for all devices continues to update every few seconds, even for the device you are currently viewing. The precise rate at which data is updated depends on the number of devices on your system; polling a single device takes about 350 milliseconds.

Following a discussion of Trip Logs and Snapshot Logs, the remainder of this section further describes the three kinds of device data (Summary, Detail, and Min/Max) and illustrates the screens of each kind of data for each device.

2.3.1 About Trip Logs and Snapshot Logs

As you view Summary and Detail Data for some devices, you can also view trip data or snapshot data for devices that provide this information.

The 4700 meter provides “snapshots” of its Summary and Detail Data. Snapshots are periodic, instantaneous readings of data taken at the interval specified on the 4700 Configuration screen (screen 1.5.1.4.5). With the optional extended memory, the 4700 meter stores the 100 most recent snapshots of its real-time data.

SCOR relays and Static Trip IIIC and IIICP trip units provide a record of information about trip events. All except the Static Trip IIIC store this information for several trip events in their Trip Logs.

The following list tells you specifically for which devices and from which screens you can view this information:

- 4700 power meter—Snapshot Logs of Summary Data and Detail Data
- SCOR relay—Trip Log of Summary Data
- STIIIC trip unit—Trip Log of Summary Data and Detail Data (though this model relays the information from only one trip event to the Power Monitor unit)
- STIIICP trip unit—Trip Log of Summary Data

You view trip data and snapshot data in the same way for any device. To retrieve information from a device’s Trip Log or Snapshot Log, follow these steps:

- Follow the steps in section 2.3 above to view the device’s Summary or Detail Data screen.
- From that data screen, press the Down or Right Arrow key to display the Snapshot Log or Trip Log. The heading above the names of the data quantities signals the switch between real-time and snapshot or trip data. Included on the screen is a field indicating the number of the entry in the log currently displayed, and the time stamps of log entries appear just above the Key Assignment box.

- Use the Down or Right Arrow key to scroll forward and the Up or Left Arrow key to scroll backward through the log.
- When you finish viewing the log, press the Up or Left Arrow key to scroll to the beginning of the log and then return to viewing real-time summary or detail data.

Because the reasons vary for a trip event, the data quantities displayed in the Trip Log may differ from those that appear in Summary or Detail Data. The Power Monitor unit changes the quantities displayed so that you are assured of getting the most important information about the cause of the trip.

Note: For any device with a Trip Log (trip units and SCOR relays), the Trip Log is automatically displayed on the Summary or Detail Data screen when a trip event occurs. The data screen resets to real-time values when the tripped breaker is closed.

2.3.2 Displaying Summary Data

The Power Monitor unit displays Summary Data for every device, to offer you a quick look at some of the more important real-time data collected by the device. You can refer to Summary Data screens when you don’t need all the information provided on Detail Data screens.

To display Summary Data for any device on your system, follow the procedure in section 2.3 above. For illustrations of the Summary Data screens for specific devices, continue reading in this section.

Summary Data for 3600, 4300, and 4700 Power Meters

Summary Data screens for 3600, 4300, and 4700 power meters list the following configuration and real-time data values:

- amps
- volts (line-to-line or line-to-neutral, depending upon the volts mode)
- kilowatts (KW)
- kilowatt (KW) demand
- power factor (PF)
- rating of the current transformer (CT) primary
- rating of the voltage transformer (VT) primary

If you need specific information about any of these values and statuses, refer to the operator’s manuals for these meters: *4300 Power Meter: Operator’s Manual* (manual no. SG-6038) or *Electronic Metering Package: 4700 Power Meter* (manual no. SG-6018).

The following illustration shows the Summary Data screen for the 3600 power meter:

2 Displaying System and Device Information

Power Monitor		Screen 1.2.1.1	8:48 Apr 14, 1992
Real-time Data	Value	Circuit: Main A	
Amps	787	3600 - S1	
Volts L-L	462	CT Primary: 1000 VT Primary: 480	
KW	485		
KW Demand	481		
P F	77 Lag	<div style="border: 1px solid black; padding: 2px;"> Key Assignment F6 = Return C = Clear Alarms </div>	

Screen 1.2.1.1. Summary Data for 3600 Power Meters

In addition to the information provided by all three meters and illustrated above for the 3600 meter, the Summary Data screen for the 4300 also displays the rating of the VT secondary.

The Summary Data screen for the 4700 meter also displays the status of relays, relay modes and discrete inputs, as shown in the next illustration:

Power Monitor		Screen 1.2.1.5	8:55 Apr 14, 1992
Real-time Data	Value	Circuit: Feeder 3	
Amps	787	4700	
Volts L-N	267	CT Primary: 1000 VT Primary: 480	
KW	-485		
KW Demand	481		
P F	77 Lag	<div style="border: 1px solid black; padding: 2px;"> Key Assignment F1 = Real-time Data F6 = Return C = Clear Alarms Arrows = Snapshots </div>	
Relay Status	Operated	Released	Released
Relay Mode	Setpoint	Manual	Manual
Discrete Inputs	On	Low	Off OK

Screen 1.2.1.5. Summary Data for 4700 Power Meters

Note: For information about the Snapshot Log accessible from the 4700 meter's Summary Data screen, refer to section 2.3.1 above.

Summary Data for Static Trip IIIC and IIICP Trip Units

Summary Data screens for Static Trip IIIC and IIICP trip units list the following status and real-time data values:

- amps for phases A, B, and C
- ground amps
- amp % capacity (IIICP only)
- rating of the phase current sensor primary
- rating of the ground current sensor primary
- pickup status
- Watchdog status (lets you know whether the trip unit passes or fails the Watchdog hardware test. If it fails the Watchdog test, replace it and have the failed trip unit tested by Siemens.)
- breaker position
- Trip Log

Note: Though the Summary Data screen for every trip unit lists all of these quantities, some of the quantities are not available from some models. Whenever you read summary data for one of these trip units, the field where the data would normally appear simply remains blank.

If you need specific information about any of these values, refer to the operator's manual for the trip unit, *Static Trip III* (manual no. SG-3118-01).

The following illustration shows the Summary Data screen for the Static Trip IIICP:

Power Monitor		Screen 1.2.1.6	8:56 Apr 14, 1992
Real-time Data	Value	Circuit: Feeder 4	
Amps, Phase A	786	STIIICNPX	
Amps, Phase B	787	Phase Sensor Primary: 800 Ground Sensor Primary: 800	
Amps, Phase C	789		
Amps, Ground			
Amp % Capacity	98	<div style="border: 1px solid black; padding: 2px;"> Key Assignment F1 = Real-time Data F4 = Clear Targets F6 = Return C = Clear Alarms Arrows = Trip Log </div>	
Pickup	INACTIVE		
Watchdog	PASS		
Breaker Position	Closed		

Screen 1.2.1.6. Summary Data for Static Trip IIICP Trip Units

2 Displaying System and Device Information

The Pickup status line shows a full-text label for any single pickup, or if more than one is active, it reverts to the abbreviations given in the following table:

Full-text label	Abbreviation
Over frequency	OHz
Under frequency	UHz
Overvoltage	OV
Undervoltage	UV
Long-time	LT
Short-time/Ground	ST/GF
Reverse power	RevKW
Amp unbalance	Aunb
Volt unbalance	Vunb

If no pickups are active, 'INACTIVE' is displayed in the Pickup field.

If a trip occurs, the "Breaker position" field displays "TRIPPED," and information about the trip appears, including the date and time of the trip event, the currents measured just prior to tripping, the pickup flags active just prior to tripping, and the actual cause of tripping or the trip target.

In addition to the data provided on the Summary Data screen, the Power Monitor unit also allows you to clear the LCD targets on the trip device that show the causes of an overcurrent trip. To clear the LCD targets, press F4 as indicated in the Key Assignment box.

Note: For information about the Trip Logs accessible from the trip units' Summary Data screens, refer to section 2.3.1 above.

Summary Data for SAMMS Devices

Summary Data screens for SAMMS devices list the following status and real-time data values:

- average amps
- amp % unbalance
- % winding temperature
- pickup status
- Watchdog status (lets you know whether the device passes or fails the Watchdog hardware test. If it fails the Watchdog test, replace it and have the failed device tested by Siemens.)
- motor status

If you need specific information about any of these values, refer to the operator's manual for the unit, *SAMMS Siemens Advanced Motor Master System* (manual no. CP3290).

The following illustration shows the Summary Data screen for the SAMMS device:

Power Monitor	Screen 1.2.1.3	8:50 Apr 14, 1992						
Real-time Data	Value	Circuit: CTF #1						
Amps, Average	7.0	SAMMS3						
Amp % Unbalance	4	Full load current #1: 10						
% Winding Temp.	7.5	Full load current #2:						
<table border="1"> <tr> <td colspan="2">Key Assignment</td> </tr> <tr> <td>F6</td> <td>= Return</td> </tr> <tr> <td>C</td> <td>= Clear Alarms</td> </tr> </table>			Key Assignment		F6	= Return	C	= Clear Alarms
Key Assignment								
F6	= Return							
C	= Clear Alarms							
Pickup	INACTIVE							
Watchdog	Pass							
Motor status	On							

Screen 1.2.1.3. Summary Data for SAMMS Devices

Summary Data for SCOR Relays

Summary Data screens for SCOR relays list the following status and real-time data values:

- amps for phases A, B, and C
- ground amps
- pickup status
- Watchdog status (lets you know whether the relay passes or fails the Watchdog hardware test. If it fails the Watchdog test, replace it and have the failed relay tested by Siemens.)
- breaker position
- Trip Log

Note: Though the Summary Data screen for every relay lists all of these quantities, some of the quantities are not available from some models. Whenever you read summary data for one of these relays, the field where the data would normally appear simply remains blank.

If you need specific information about any of these values, refer to the operator's manual for the SCOR relay, *SCOR Overcurrent Protective Relay* (manual no. SG-9228-01).

The following illustration shows the Summary Data screen for the SCOR relay:

2 Displaying System and Device Information

Power Monitor		Screen 1.2.1.4	8:53 Apr 14, 1992										
Real-time Data	Value	Circuit: Main B											
Amps, Phase A	2327	SCOR											
Amps, Phase B	2317	Phase CT primary: 5000											
Amps, Phase C	2325	Ground CT primary: 50											
Amps, Ground	10												
<table border="1"> <tr> <td colspan="2">Key Assignment</td> </tr> <tr> <td>F1</td> <td>= Real-time Data</td> </tr> <tr> <td>F6</td> <td>= Return</td> </tr> <tr> <td>C</td> <td>= Clear Alarms</td> </tr> <tr> <td>Arrows</td> <td>= Trip Log</td> </tr> </table>				Key Assignment		F1	= Real-time Data	F6	= Return	C	= Clear Alarms	Arrows	= Trip Log
Key Assignment													
F1	= Real-time Data												
F6	= Return												
C	= Clear Alarms												
Arrows	= Trip Log												
Pickup	Inactive												
Watchdog	Pass												
Breaker Position	CLOSED												

Screen 1.2.1.4. Summary Data for SCOR Relays

Note: For information about the Trip Log accessible from the SCOR relay's Summary Data screen, refer to section 2.3.1 above.

Summary Data for Sensitrip III Electronic Trip Units and Type SB Systems Breakers

Summary Data screens for Sensitrip III electronic trip units and for Type SB systems breakers are nearly identical. Both screens list the following status and real-time data values:

- amps for phases A, B, and C
- ground amps
- average amps
- pickup status
- MT communication (lets you know whether the Multiplexer Translator, to which the trip unit or systems breaker is connected, is communicating properly)
- breaker position

Note: Though the Summary Data screen for every trip unit and breaker lists all of these quantities, some of the quantities are not available from some models. Whenever you read summary data for one of these devices, the field where the data would normally appear simply remains blank.

If you need specific information about any of these values, refer to the operator's manuals for these devices: *SB Encased Systems Breakers* (bulletin no. 2.20-4A) and *Electronic Trip Unit for SB Encased Systems Breakers* (bulletin no. 2.20-3).

The following illustration shows the Summary Data screen for the Type SB systems breaker:

Power Monitor		Screen 1.2.1.8	13:12 Apr 14, 1992						
Real-time Data	Value	Circuit: Feeder 6							
Amps, Phase A	786	SB							
Amps, Phase B	787	Frame rating	2000 A						
Amps, Phase C	789	Rating plug	2000 A						
Amps, Ground	10								
Amps, Average	787								
<table border="1"> <tr> <td colspan="2">Key Assignment</td> </tr> <tr> <td>F6</td> <td>= Return</td> </tr> <tr> <td>C</td> <td>= Clear Alarms</td> </tr> </table>				Key Assignment		F6	= Return	C	= Clear Alarms
Key Assignment									
F6	= Return								
C	= Clear Alarms								
Pickup	INACTIVE								
MT communication	OK								
Breaker Position	CLOSED								

Screen 1.2.1.8. Summary Data for Type SB Systems Breakers

The Summary Data screen for Sensitrip III electronic trip units is the same as that of the SB breaker except on two points: the screen number (which is 1.2.1.7 for the Sensitrip III) and the Rating Plug field (which is not found on the Sensitrip III screen).

2.3.3 Displaying Detail Data

The Power Monitor unit displays Detail Data for every device it supports. Detail Data screens display all real-time data collected by the device.

To display Detail Data for any device on your system, follow the procedure in section 2.3 above. For illustrations of the Detail Data screens for specific devices, continue reading in this section.

Detail Data for 3600, 4300, and 4700 Power Meters

Detail Data for 3600, 4300, and 4700 power meters varies somewhat because of the differences in the features that the products offer, but all three meters measure the following quantities, which you can view on their Detail Data screens:

- amps for phases A, B, and C
- average amps
- volts for phases A, B, and C (line-to-line or line-to-neutral; the 4300 and the 4700 power meters display both simultaneously.)
- average volts
- kilowatts (KW)
- kilowatt (KW) demand
- kilowatt-hours (KWHR)
- power factor

2 Displaying System and Device Information

If you need specific information about data values, refer to the operator's manuals for these meters: *4300 Power Meter: Operator's Manual* (manual no. SG-6038) or *Electronic Metering Package: 4700 Power Meter* (manual no. SG-6018).

The following illustration shows the Detail Data screen for the 4300 power meter:

Power Monitor		Screen 1.2.2.9		8:55 Apr 14, 1992	
Circuit: Feeder 3 4300					
Amperage	Phase A	786			
	Phase B	787			
	Phase C	789			
	Average	787			
				Key Assignment F6 = Return C = Clear Alarms	
Voltage	Phase A-B	461	Phase A	268	
	Phase B-C	462	Phase B	266	
	Phase C-A	464	Phase C	268	
	Average	462	Average	267	
KW Total		485	KWHR		15743
KW Demand		481			
Power Factor		77 Lag			

Screen 1.2.2.9. Detail Data for 4300 Power Meters

In addition to the detail data provided by the 4300 meter, the 3600 meter also measures these quantities:

- kilovars (KVAR)
- KVA
- kilovar-hours (KVARHR)
- frequency

The next illustration shows the Detail Data screen for the 3600 meter:

Power Monitor		Screen 1.2.2.1		8:48 Apr 14, 1992	
Circuit: Main A 3600-S1					
Amperage	Phase A	786			
	Phase B	787			
	Phase C	789			
	Average	787			
				Key Assignment F6 = Return C = Clear Alarms	
Voltage	Phase A-B	461			
	Phase B-C	462			
	Phase C-A	464			
	Average	462			
KW		485	KWHR		15743
KW Demand		481			
KVAR		401	KVARHR		12936
KVA		629			
Power Factor		77 Lag			
Frequency		60.0			

Screen 1.2.2.1. Detail Data for 3600 Power Meters

The Detail Data screen for the 4700 meter also displays auxiliary voltage and reverse kilowatt-hours, as shown in the following illustration:

Power Monitor		Screen 1.2.2.5		8:55 Apr 14, 1992	
Circuit: Feeder 3 4700					
Amperage	Phase A	786			
	Phase B	787			
	Phase C	789			
	Average	787			
	Neutral	0			
	Demand	784			
				Key Assignment F1 = Real-time Data F6 = Return C = Clear Alarms Arrows = Snapshots	
Voltage	Phase A-B	461	Phase A	268	
	Phase B-C	462	Phase B	266	
	Phase C-A	464	Phase C	268	
	Average	462	Average	267	
KW		485	KWHR		15743
KW Demand		481	KWHR Reverse		6
KVAR		401	KVARHR		12936
KVA		629			
Power Factor		77 Lag			
Frequency		60.0			
V aux.		169			

Screen 1.2.2.5 Detail Data for 4700 Power Meters

Note: For information about the Snapshot Log accessible from the 4700 meter's Detail Data screen, refer to section 2.3.1 above.

Detail Data for Static Trip IIIC and IIICP Trip Units

Detail Data screens for Static Trip IIIC and IIICP trip units differ substantially because of the greater capability of the IIICP; however, both devices provide the following detail data:

- amps for phases A, B, and C
- average amps
- ground amps
- rating of the phase current sensor primary
- rating of the ground current sensor primary
- pickup status
- Watchdog status (lets you know whether the trip unit passes or fails the Watchdog hardware test. If it fails the Watchdog test, replace it and have the failed trip unit tested by Siemens.)
- breaker position

Note: Though the Detail Data screen for every trip unit lists all of these quantities, some of the quantities are not available from some models. Whenever you read detail data for one of these trip units, the field where the data would normally appear simply remains blank.

The Detail Data screen for the Static Trip IIIC also shows the Trip Log, but if you want to view the Trip Log for a Static Trip IIICP, you must go to its Summary Data screen (1.2.1.6).

If you need specific information about any of these values, refer to the operator's manual for the trip unit, *Static Trip III* (manual no. SG-3118-01).

2 Displaying System and Device Information

The Pickup status line shows a full-text label for any single pickup, or if more than one is active, it reverts to the abbreviations given in the following table:

Full-text label	Abbreviation
Over frequency	OHZ
Under frequency	UHZ
Overvoltage	OV
Undervoltage	UV
Long-time	LT
Short-time/Ground	ST/GF
Reverse power	RevKW
Amp unbalance	Aunb
Volt unbalance	Vunb

If no pickups are active, 'INACTIVE' is displayed in the Pickup field.

If a trip occurs, the "Breaker position" field displays "TRIPPED," and information about the trip appears, including the date and time of the trip event, the currents measured just prior to tripping, the pickup flags active just prior to tripping, and the actual cause of tripping or the trip target.

In addition to the data provided on the Detail Data screen, the Power Monitor unit also allows you to clear the LCD targets on the trip device that show the causes of an overcurrent trip. To clear the LCD targets, press F4 as indicated in the Key Assignment box.

The following illustration shows the Detail Data screen for the Static Trip IIIC:

Power Monitor		Screen 1.2.2.2		8:49 Apr 14, 1992									
Circuit: Sub #1 ST III / C													
Amperage	Phase A	786	<table border="1"> <tr> <th colspan="2">Key Assignment</th> </tr> <tr> <td>F4</td> <td>= Clear Targets</td> </tr> <tr> <td>F6</td> <td>= Return</td> </tr> <tr> <td>C</td> <td>= Clear Alarms</td> </tr> </table>			Key Assignment		F4	= Clear Targets	F6	= Return	C	= Clear Alarms
Key Assignment													
F4	= Clear Targets												
F6	= Return												
C	= Clear Alarms												
	Phase B	787											
	Phase C	789											
	Average	787											
	Ground	10											
Pickup	INACTIVE		Phase Sensor Primary:	800									
Watchdog	PASS		Ground Sensor Primary:	800									
Breaker Position	CLOSED												
Trip log	Phase 1	Phase 2	Phase 3	Ground	Targets								
11:31:26	781	788	828	0	SHORT CIRCUIT								

Screen 1.2.2.2. Detail Data for Static Trip IIIC Trip Units

The Static Trip IIICP trip unit provides much more information on the Detail Data screen. In addition to the quantities listed above for the Static Trip IIIC, the IIICP provides the following information:

- neutral amps
- amps % unbalance
- voltage (phase-to-phase)
- % unbalance
- average voltage
- voltage (phase-to-neutral) and average voltage
- kilowatts (KW)
- kilowatt (KW) demand
- kilovars (KVAR)
- KVA
- power factor
- kilowatt-hours (KWHR)
- kilowatt-hours (KWHR) reverse
- kilovar-hours (KVARHR)
- frequency
- auxiliary relay

Note: Although the Detail Data screen for every trip unit lists all of these quantities, some of the quantities are not available from some models. Whenever you read detail data for one of these trip units, the field where the data would normally appear simply remains blank.

The following illustration shows the Detail Data screen for Static Trip IIICP trip units:

Power Monitor		Screen 1.2.2.6		8:57 Apr 14, 1992									
Circuit: Feeder 4 STIIICNPX													
Amperage	Phase A	786	<table border="1"> <tr> <th colspan="2">Key Assignment</th> </tr> <tr> <td>F4</td> <td>= Clear Targets</td> </tr> <tr> <td>F6</td> <td>= Return</td> </tr> <tr> <td>C</td> <td>= Clear Alarms</td> </tr> </table>			Key Assignment		F4	= Clear Targets	F6	= Return	C	= Clear Alarms
Key Assignment													
F4	= Clear Targets												
F6	= Return												
C	= Clear Alarms												
	Phase B	787											
	Phase C	789											
	Average	787											
	Neutral	0											
	Ground	10											
Voltage	Phase A-B	461	Phase A	268									
	Phase B-C	462	Phase B	266									
Unbalance	Phase C-A	464	Phase C	268									
0 %	Average	462	Average	267									
KW		485	KWHR		15743								
KW Demand		481	KWHR Reverse		6								
KVAR		401	KVARHR		12936								
KVA		629	Frequency		60.0								
Power Factor		77	Aux relay		Released								
Pickup	INACTIVE												
Watchdog	PASS												
Breaker Position	CLOSED												

Screen 1.2.2.6. Detail Data for Static Trip IIICP Trip Units

2 Displaying System and Device Information

Detail Data for SAMMS Devices

Detail Data screens for SAMMS devices list the following status and real-time data values:

- amps for phases A, B, and C
- average amps
- amps % unbalance
- winding temperature %
- time to restart
- motor run time (log of the number of hours that the motor has run)
- number of starts (for the motor)
- overload trips (number of trips for the motor)
- last trip current
- pickup status
- Watchdog status (lets you know whether the device passes or fails the Watchdog hardware test. If it fails the Watchdog test, replace it and have the failed device tested by Siemens.)
- motor status

Note: Although the Detail Data screen for every SAMMS device lists all of these quantities, some of the quantities are not available from some SAMMS models. Whenever you read detail data for one of these SAMMS devices, the field where the data would normally appear simply remains blank.

If you need specific information about any of these values, refer to the operator's manual for the device, *SAMMS Siemens Advanced Motor Master System* (manual no. CP3290).

The following illustration shows the Detail Data screen for the SAMMS device:

Power Monitor		Screen 1.2.2.3		8:50 Apr 14, 1992							
Circuit: MCC #1 SAMMS3											
Amperage	Phase A	7.2	<table border="1"> <tr> <td colspan="2">Key Assignment</td> </tr> <tr> <td>F6</td> <td>= Return</td> </tr> <tr> <td>C</td> <td>= Clear Alarms</td> </tr> </table>			Key Assignment		F6	= Return	C	= Clear Alarms
Key Assignment											
F6	= Return										
C	= Clear Alarms										
	Phase B	7.0									
Unbalance	Phase C	7.0									
4 %	Average	7.0									
Winding Temperature		75 %									
Time to Restart		0 s									
Motor Run Time	721 Hr		Pumps	Water	Reserv						
Number of Starts	222		Inputs	<On 1>	<On 2> Stop						
Overload Trips	13		Outputs	On	Off Off						
Last Trip Current	48.6 A										
Pickup	INACTIVE										
Watchdog	Pass										
Motor Status	ON										

Screen 1.2.2.3. Detail Data for SAMMS Devices

Detail Data for SCOR Relays

Detail Data screens for SCOR relays list the following status and real-time data values:

- amps for phases A, B, and C
- average amps
- ground amps
- amps % unbalance
- amp demand for phases A, B, and C
- pickup status
- Watchdog status (lets you know whether the relay passes or fails the Watchdog hardware test. If it fails the Watchdog test, replace it and have the failed relay tested by Siemens.)
- breaker position

Note: Though the Detail Data screen for every relay lists all of these quantities, some of the quantities are not available from some models. Whenever you read detail data for one of these relays, the field where the data would normally appear simply remains blank.

If you need specific information about any of these values, refer to the operator's manual for the SCOR relay, *SCOR Overcurrent Protective Relay* (manual no. SG-9228-01).

The following illustration shows the Detail Data screen for the SCOR relay:

Power Monitor		Screen 1.2.2.4		8:54 Apr 14, 1992							
Circuit: Main B SCOR											
Amperage	Phase A	2327	<table border="1"> <tr> <td colspan="2">Key Assignment</td> </tr> <tr> <td>F6</td> <td>= Return</td> </tr> <tr> <td>C</td> <td>= Clear Alarms</td> </tr> </table>			Key Assignment		F6	= Return	C	= Clear Alarms
Key Assignment											
F6	= Return										
C	= Clear Alarms										
	Phase B	2317									
Unbalance	Phase C	2325									
0 %	Average	2323									
	Ground	10									
Amp Demand	Phase A	2311									
	Phase B	2298									
	Phase C	2313									
Pickup	Inactive										
Watchdog	Pass										
Breaker Position	Closed										

Screen 1.2.2.4 Detail Data for SCOR Relays

Detail Data for Sensitrip III Electronic Trip Units and Type SB Systems Breakers

Detail Data screens for Sensitrip III electronic trip units and Type SB systems breakers are identical. Both screens list the following status and real-time data values:

2 Displaying System and Device Information

- amps for phases A, B, and C
- average amps
- ground amps
- pickup status
- MT communication (lets you know whether the Multiplexer Translator, to which the trip unit or systems breakers is connected, is communicating properly)
- breaker position

Note: Though the Detail Data screen for every trip unit and breaker lists all of these quantities, some of the quantities are not available from some models. Whenever you read detail data for one of these devices, the field where the data would normally appear simply remains blank.

If you need specific information about any of these values and status, refer to the operator's manuals for the Sensitrip III trip unit and Type SB systems breakers: *SB Encased Systems Breakers* (bulletin no. 2.20-4A) and *Electronic Trip Unit for SB Encased Systems Breakers* (bulletin no. 2.20-3).

The following illustration shows the Detail Data screen for the Type SB systems breaker:

Power Monitor		Screen 1.2.2.8		13:12 Apr 14, 1992	
Circuit: Feeder 6 SB					
Amperage	Phase A	786	Key Assignment F6 = Return C = Clear Alarms		
	Phase B	787			
	Phase C	789			
	Average	787			
	Ground	0			
Pickup	INACTIVE				
MT communication	OK				
Breaker Position	OK				

Screen 1.2.2.8 Detail Data for Type SB Systems Breakers

2.3.4 Displaying Min/Max Data

Since the real-time data does not tell you everything you need to know about the operation of your system, the Power Monitor unit provides minimum/maximum value tables for all devices. In addition to the data in these tables, you also find a date/time stamp to tell you when the values were reached and the date and time when the tables were last cleared.

To display Min/Max Data for any device on your system, follow the procedure in section 2.3 above. For illustrations of the Min/Max screens for specific devices, continue reading in this section.

Min/Max Data for 3600, 4300, and 4700 Power Meters

Min/Max Data for 3600, 4300, and 4700 power meters varies somewhat because of the differences in the features that the products offer, but all three meters include the following quantities on their Min/Max Data screens:

- amps for phases A, B, and C
- average amps
- volts for phases A, B, and C (line-to-line or line-to-neutral; the 4300 and 4700 power meters display both simultaneously.)
- average volts
- kilowatts (KW)
- kilowatt (KW) demand
- power factor

Note: The time stamp for each value is obtained from the power meter, not from the time of polling.

If you need specific information about data values, refer to the operator's manuals for these meters: *4300 Power Meter: Operator's Manual* (manual no. SG-6038) or *Electronic Metering Package: 4700 Power Meter* (manual no. SG-6018).

The following illustration shows the Min/Max Data screen for the 4300 power meter:

Power Monitor		Screen 1.2.3.9		8:56 Apr 14, 1992		
Circuit: Feeder 3 4300						
Parameter	Min	MM/DD/YY	hh:mm:ss	Max	MM/DD/YY	hh:mm:ss
Amp Phase A	0	4/14/92	8:50:03	2371	4/14/92	8:55:49
Amp Phase B	0	4/14/92	8:49:49	2355	4/14/92	8:55:50
Amp Phase C	0	4/14/92	8:49:22	2373	4/14/92	8:49:22
Amp Average	0	4/14/92	8:49:59	2366	4/14/92	8:55:49
Volt Phase A	262	4/14/92	8:50:01	271	4/14/92	8:55:50
Volt Phase B	259	4/14/92	8:49:57	268	4/14/92	8:55:48
Volt Phase C	263	4/14/92	8:49:22	272	4/14/92	8:49:22
Volt Average	261	4/14/92	8:50:01	270	4/14/92	8:55:50
Volt Phase A-B	450	4/14/92	8:49:49	466	4/14/92	8:55:49
Volt Phase B-C	451	4/14/92	8:50:05	467	4/14/92	8:53:23
Volt Phase C-A	454	4/14/92	8:49:49	470	4/14/92	8:53:46
Volt L-L Average	474	4/14/92	8:49:49	468	4/14/92	8:53:55
KW Demand	222	4/14/92	8:49:55	1165	4/14/92	8:49:22
KW Total	- 0	4/14/92	8:55:49	1458	4/14/92	8:49:49
Power Factor	1 Lag	4/14/92	8:49:24	44 Lead	4/14/92	8:49:22
Last cleared: 4/08/92 15:44:09 F6 = Return C = Clear Alarms						

Screen 1.2.3.9. Min/Max Data for 4300 Power Meters

In addition to the minimum and maximum values provided by the 4300 meter, the 3600 meter also includes these quantities:

- KVA
- kilovars (KVAR)
- frequency

The next illustration shows the Min/Max Data screen for the 3600 meter:

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Power Monitor Screen 1.2.3.1 8:49 Apr 14, 1992

Circuit: Main A 3600 - S1

Parameter	Min	Date	Time	Max	Date	Time
		MM/DD/YY	hh:mm:ss		MM/DD/YY	hh:mm:ss
Volt Phase A L-L	450	4/09/92	11:36:31	466	4/13/92	20:10:22
Volt Phase B L-L	451	4/09/92	11:30:45	467	4/13/92	20:09:19
Volt Phase C L-L	454	4/08/92	15:44:08	470	4/09/92	11:30:06
Volt Average L-L	452	4/09/92	11:30:45	467	4/13/92	20:08:55
Amp Phase A	0	4/13/92	14:38:37	2371	4/13/92	20:09:12
Amp Phase B	0	4/09/92	11:30:45	2355	4/13/92	20:09:50
Amp Phase C	0	4/08/92	15:44:08	2373	4/08/92	15:44:08
Amp Average	0	4/09/92	11:30:45	2366	4/13/92	20:10:22
KW	0	4/08/92	15:44:08	1458	4/08/92	15:44:08
KW Demand	222	4/09/92	11:31:01	1165	4/14/92	8:46:27
KVA	0	4/13/92	14:38:35	1894	4/13/92	20:10:22
KVAR	24	4/09/92	11:30:45	1207	4/13/92	20:09:21
Power Factor	1Lag	4/08/92	17:29:05	44Lead	4/08/92	15:44:08
Frequency	59.9	4/08/92	11:54:38	60.1	4/08/92	15:44:44

Last cleared: 4/08/92 15:44:07
F6 = Return C = Clear Alarms

Screen 1.2.3.1. Min/Max Data for 3600 Power Meters

In addition to all the minimum and maximum quantities of the other meters, the Min/Max Data screen for the 4700 meters also includes these values:

- neutral amps
- amp demand
- auxiliary voltage

The following illustration shows the Min/Max Data screen for the 4700 meter:

Power Monitor Screen 1.2.3.5 8:56 Apr 14, 1992

Circuit: Feeder 3 4700

Parameter	Min	Date	Time	Max	Date	Time
		MM/DD/YY	hh:mm:ss		MM/DD/YY	hh:mm:ss
Amp Phase A	0	4/14/92	8:50:03	2371	4/14/92	8:55:49
Amp Phase B	0	4/14/92	8:49:49	2355	4/14/92	8:55:50
Amp Phase C	0	4/14/92	8:49:22	2373	4/14/92	8:49:22
Amp Average	0	4/14/92	8:49:59	2366	4/14/92	8:55:49
Neutral	0	4/14/92	8:49:22	4	4/14/92	8:49:22
Amp Demand	361	4/14/92	8:50:55	1889	4/14/92	8:49:22
Volt Phase A	262	4/14/92	8:50:01	271	4/14/92	8:55:50
Volt Phase B	259	4/14/92	8:49:57	268	4/14/92	8:55:48
Volt Phase C	263	4/14/92	8:49:22	272	4/14/92	8:49:22
Volt Average	261	4/14/92	8:50:01	270	4/14/92	8:55:50
Volt Phase A-B	450	4/14/92	8:49:49	466	4/14/92	8:55:49
Volt Phase B-C	451	4/14/92	8:50:05	467	4/14/92	8:53:23
Volt Phase C-A	454	4/14/92	8:49:49	470	4/14/92	8:53:46
KW Demand	222	4/14/92	8:49:55	1165	4/14/92	8:49:22
KW	0	4/14/92	8:55:49	1458	4/14/92	8:49:49
KVA	0	4/14/92	8:50:03	1894	4/14/92	8:55:49
KVAR	24	4/14/92	8:55:49	1207	4/14/92	8:50:02
Power Factor	1 Lag	4/14/92	8:49:24	44 Lead	4/14/92	8:49:22
Frequency	59.9	4/14/92	8:49:22	60.1	4/14/92	8:49:59
V aux.	169	4/14/92	8:49:39	169	4/14/92	8:49:38

Last cleared: 4/08/92 15:44:09 F6 = Return C = Clear Alarms

Screen 1.2.3.5. Min/Max Data for 4700 Power Meters

Min/Max Data for Static Trip IIIC and IIICP Trip Units

The Min/Max Data screens for Static Trip IIIC and IIICP trip units differ substantially in the data that they provide and in the layout of the information on the screen. The minimum and maximum values are displayed side by side on the screen for the IIICP; they are listed separately on the screen for the IIIC.

The Min/Max Data screen for the Static Trip IIIC provides minimum and maximum readings for the following quantities:

- amps for phases A, B, and C
- ground amps

If you need specific information about any of these values, refer to the operator's manual for the trip unit, *Static Trip III* (manual no. SG-3118-01).

The following illustration shows the Min/Max Data screen for the Static Trip IIIC trip unit:

Power Monitor Screen 1.2.3.2 8:49 Apr 14, 1992

Circuit: Sub #1 ST III/C

Parameter	Min	Date	Time
		MM/DD/YY	hh:mm:ss
Amp Phase A	0	4/13/92	14:34:24
Amp Phase B	0	4/13/92	14:34:24
Amp Phase C	0	4/13/92	14:34:24
Amp Ground	0	4/13/92	14:34:24

Parameter	Max	Date	Time
		MM/DD/YY	hh:mm:ss
Amp Phase A	2371	4/14/92	15:44:11
Amp Phase B	2355	4/13/92	16:25:33
Amp Phase C	2373	4/15/92	19:33:51
Amp Ground	10	4/16/92	17:39:47

Last cleared: 4/08/92 15:44:08
F6 = Return C = Clear Alarms

Screen 1.2.3.2. Min/Max Data for Static Trip IIIC Trip Units

The Min/Max Data screen for Static Trip IIICP trip units provides minimum and maximum readings for the following quantities:

- amps for phases A, B, and C
- average amps
- ground amps
- neutral amps
- volts for phases A, B, and C (line-to-line and line-to-neutral)
- average volts (line-to-line and line-to-neutral)
- kilowatts (KW)
- kilowatts (KW) demand
- KVA
- kilovars (KVAR)
- power factor
- frequency

The following illustration shows the Min/Max Data screen for the Static Trip IIICP trip unit:

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Power Monitor		Screen 1.2.3.6		8:57 Apr 14, 1992	
Circuit: Feeder 4 STIICNPX					
Parameter	Min	MM/DD/YY hh:mm:ss	Max	MM/DD/YY hh:mm:ss	
Amp Phase A	0	4/08/92 15:44:21	2371	4/08/92 15:44:26	
Amp Phase B	0	4/08/92 15:44:21	2355	4/08/92 15:44:26	
Amp Phase C	0	4/08/92 15:44:21	2373	4/08/92 15:44:26	
Amp Average	0	4/08/92 15:44:21	2366	4/08/92 15:44:26	
Amp Ground	0	4/08/92 15:44:21	0	4/08/92 15:44:26	
Amp Neutral	0	4/08/92 15:44:21	4	4/08/92 15:44:26	
Volt Phase A	262	4/08/92 15:44:21	271	4/08/92 15:44:26	
Volt Phase B	259	4/08/92 15:44:21	268	4/08/92 15:44:26	
Volt Phase C	263	4/08/92 15:44:21	272	4/08/92 15:44:26	
Volt Average	261	4/08/92 15:44:21	270	4/08/92 15:44:26	
Volt Phase AB	450	4/08/92 15:44:21	466	4/14/92 8:46:45	
Volt Phase BC	451	4/08/92 15:44:21	467	4/08/92 15:44:26	
Volt Phase CA	454	4/08/92 15:44:21	470	4/08/92 15:44:26	
Volt Average L-L	452	4/08/92 15:44:21	468	4/14/92 8:46:45	
KW Demand	222	4/08/92 15:44:21	1165	4/08/92 15:44:26	
KVA	0	4/08/92 15:44:21	1894	4/08/92 15:44:26	
KW	0	4/08/92 15:44:21	1458	4/08/92 15:44:26	
KVAR	24	4/08/92 15:44:21	1207	4/08/92 15:44:26	
Power Factor	1 Lag	4/08/92 15:44:21	44 Lead	4/08/92 15:44:26	
Frequency	59.9	4/08/92 15:44:21	60.1	4/08/92 15:44:26	

Last cleared: 4/08/92 15:44:09 F6 = Return C = Clear Alarms

Screen 1.2.3.6. Min/Max Data for Static Trip III CP Trip Units

Note: Although the Detail Data screen for every Static Trip III CP lists all of these quantities, some of the quantities are not available from some models of the Static Trip III CP. Whenever you read min/max data for one of these III CPs, the field where the data would normally appear simply remains blank.

Min/Max Data for SAMMS Devices

The Min/Max Data screen for SAMMS devices provides minimum and maximum readings for the following quantities:

- amps for phases A, B, and C
- average amps
- % winding temperature

If you need specific information about any of these values, refer to the operator's manual for the unit, *SAMMS Siemens Advanced Motor Master System* (manual no. CP3290).

The following illustration shows the Min/Max Data screen for the SAMMS device.

Power Monitor		Screen 1.2.3.3		8:50 Apr 14, 1992		
Circuit: MCC #1 SAMMS3						
Min	Date	Time	Parameter	Max	Date	Time
	MM/DD/YY	hh:mm:ss			MM/DD/YY	hh:mm:ss
0.0	4/08/92	15:44:17	Amp Phase A	19.7	4/08/92	15:44:17
0.0	4/08/92	15:44:17	Amp Phase B	19.0	4/08/92	15:44:17
0.0	4/08/92	15:44:17	Amp Phase C	23.0	4/08/92	15:44:17
0.0	4/08/92	15:44:17	Amp Average	20.6	4/08/92	15:44:17
0	4/08/92	15:44:17	% Winding Temp.	79	4/08/92	15:44:17

Last cleared: 4/08/92 15:44:08
F6 = Return C = Clear Alarms

Screen 1.2.3.3. Min/Max Data for SAMMS Devices

Note: The time stamp for each value is obtained from the SAMMS device, not from the time of polling.

Min/Max Data for SCOR Relays

The Min/Max Data screen for SCOR relays provides minimum and maximum readings for the following quantities:

- amps for phases A, B, and C
- average amps
- ground amps
- amps % unbalance
- amp demand for phases A, B, and C

If you need specific information about any of these values, refer to the operator's manual for the SCOR relay, *SCOR Overcurrent Protective Relay* (manual no. SG-9228-01).

The following illustration shows the Min/Max Data screen for SCOR the relay:

Power Monitor		Screen 1.2.3.4		8:54 Apr 14, 1992		
Circuit: Main B SCOR						
Min	Date	Time	Parameter	Max	Date	Time
	MM/DD/YY	hh:mm:ss			MM/DD/YY	hh:mm:ss
71	4/08/92	15:44:13	Amp Phase A	2402	4/08/92	15:44:13
71	4/08/92	15:44:13	Amp Phase B	2388	4/08/92	15:44:13
71	4/08/92	15:44:36	Amp Phase C	2406	4/08/92	15:44:36
71	4/08/92	15:44:36	Amp Average	2395	4/08/92	15:44:13
0	4/08/92	11:39:00	Amp Ground	10	4/13/92	19:32:37
0	4/08/92	15:44:19	Amp % Unbalance	1	4/08/92	15:44:19
282	4/08/92	15:44:13	Amp Ph A Demand	2398	4/08/92	15:44:13
280	4/08/92	15:44:13	Amp Ph B Demand	2379	4/08/92	15:44:13
283	4/09/92	11:32:19	Amp Ph C Demand	2390	4/08/92	15:44:13

Last cleared: 4/08/92 15:44:08
F6 = Return C = Clear Alarms

Screen 1.2.3.4. Min/Max Data for SCOR Relays

Note: The time stamp for each value is obtained from the SCOR relay, not from the time of polling.

Min/Max Data for Sensitrip III Electronic Trip Units and Type SB Systems Breakers

Min/Max Data screens for Sensitrip III electronic trip units and Type SB systems breakers are identical. Both screens provide minimum and maximum readings for the following quantities:

- amps for phases A, B, and C
- average amps
- ground amps

If you need specific information about any of these values, refer to the operator's manuals for the Sensitrip III trip unit and Type SB systems breakers: *SB Encased Systems Breakers*

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(bulletin no. 2.20-4A) and *Electronic Trip Unit for SB Encased Systems Breakers* (bulletin no. 2.20-3).

The following illustration shows the Min/Max Data screen for the Type SB systems breaker:

Power Monitor		Screen 1.2.3.8		13:13 Apr 14, 1992		
Circuit: Feeder 6 SB						
Min	Date MM/DD/YY	Time hh:mm:ss	Parameter	Max	Date MM/DD/YY	Time hh:mm:ss
0	4/08/92	15:44:22	Amp Phase A	2371	4/09/92	15:45:21
0	4/08/92	15:44:22	Amp Phase B	2355	4/09/92	15:47:34
0	4/08/92	15:44:22	Amp Phase C	2373	4/09/92	15:50:56
0	4/08/92	15:44:22	Amp Average	2366	4/08/92	15:47:42
0	4/08/92	15:44:22	Amp Ground	5	4/08/92	15:44:22

Last cleared: 4/08/92 15:44:09

F6 = Return C = Clear Alarms

Screen 1.2.3.8 Min/Max Data for Type SB Systems Breakers

2.4 Displaying the Event Log

The Power Monitor unit's Event Log displays, in reverse chronological order, the 64 most recent messages about events related to the operation of your system and its devices. These messages are displayed in chronologically descending order, on as many as four successive screens of 16 messages each. Event Log messages usually pertain to the function of a particular device on your system. (Messages pertaining to the system usually appear in the System Diagnostic Log [screen 1.5.4].) For example, the Power Monitor unit generates an alarm message when a power meter detects an amp level outside the range you specified when you configured the device or when a trip unit trips a breaker.

Although the information may vary among Event Log entries, messages follow a format that always gives you the following basic information in the order listed:

1. Date of occurrence of the event or alarm
2. Time of occurrence of the event or alarm
3. Message pertaining to the event or alarm, including
 - circuit name
 - device type
 - data item involved
 - data value causing an alarm

For more specific information about messages in the event log, refer to Appendix A of this manual. To display the Power Monitor unit's Event Log, follow these steps:

1. Select "Display Event Log" from the Main Menu. The Event Log screen appears:

Power Monitor		Screen 1.3		9:00 Apr 14, 1992	
EVENT LOG SCREEN				Key Assignment	
Cursor event number: 1				F1 = Home	F4 = Erase Log
				F5 = Erase Event	F6 = Return
				C = Clear Alarms	Arrows = Cursor/Page
4/15/92	8:56:22	MCC #3 Trip Unit: Amps 344/370/392 was max - now within limits			
4/15/92	8:46:38	Alarms acknowledged			
4/15/92	8:46:37	MCC #3 STIIICP Amps 325/342/378 too high			
4/15/92	8:46:33	MCC #3 STIIICP Breaker Closed			
4/13/92	19:46:26	Alarms acknowledged			
4/13/92	19:26:24	MCC #3 STIIICP: Trip 412/506/434 GND 0 Overload			
4/13/92	19:26:15	MCC #3 STIIICP: Long time Pickup 372/489/396 GND 0			
4/13/92	18:26:10	Input: Transformer temp. Back to normal.			
4/13/92	18:26:04	Discrete input alarms acknowledged.			
4/13/92	18:08:43	Input: Transformer temp. In state: High			
4/13/92	18:08:39	Alarms reset			
4/13/92	18:08:32	MAIN B 4700: Volts 475/475/475 was min - now within limits			
4/13/92	17:04:26	MAIN B 4700: Volts 475/475/475 too low			
4/13/92	17:04:23	Sub #1 STIIICP: Breaker open			
4/13/92	17:04:17	Feeder 4 STIIICP: Breaker open			
4/13/92	16:56:27	Powered up			

Screen 1.3. Event Log Screen

2. You can move through the Event Log in either of two ways. To scroll through the Event Log line by line, use the Up and Down Arrow keys. To scroll through the Event Log one page at a time, use the Left and Right Arrow keys.
3. To erase a single entry from the log, position the cursor on that entry and press F5. To clear the entire Event Log, press F4.
4. When you finish viewing the Event Log, press F6 to save any changes and return to the Main Menu.

2.5 Power Monitor Alarms

The Power Monitor unit constantly checks the data and status of the devices connected to it. When it detects a change in the status of a device or the system, or when data exceeds the Alarm Limits established for a particular device, the Power Monitor unit generates an alarm. Alarm limits for each device on your system are configured by the settings programmed on the device's Alarm Limits screen. (Setting alarm limits is discussed later in this manual in section 3.4.)

Each alarm limit for each device can be configured to log or to sound and log an alarm whenever the limit is exceeded. When you configure the alarm limit in either of these ways, the message appears on the Event Log.

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Note: Any alarm on an Alarm Limits screen is configurable, but a device's trip alarm does not appear on the Alarm Limits screen and is not configurable; instead, all trip alarms are always enabled, and messages are always written to the Event Log when a trip occurs. Because of their importance, pickup and breaker status alarms are set by default to "Sound and Log" an alarm; however, you can reconfigure them from the Alarm Limits screen.

The Power Monitor unit's alarms are of three types:

1. *Value alarms:* A value alarm occurs when the value of a data item exceeds programmed limits for more than the designated amount of time. Value alarms can be configured, enabled and disabled by the user via the configuration screens.
2. *State-change alarms:* A state-change alarm occurs when a status changes, such as when a SCOR relay or 4700 power meter goes into pickup. Some state-change alarms are always enabled (for example, trip alarms are always enabled) and those alarms that relate to system status always appear in the Event Log. However, the user can determine (via the configuration screens) whether state alarms related to changes in device status will be logged to the Event Log.
3. *Error alarms:* An error alarm occurs because of system abnormalities. Error alarms are usually logged into the System Diagnostic Log. For those devices that log their own events internally, the Power Monitor unit merely copies those messages to its Event Log.

Appendix A contains a more complete list of possible alarms.

2.5.1 The Life Cycle of an Alarm

With respect to alarms, the Power Monitor unit is always operating in one of four states:

- not alarmed (normal or no-alarm state)
- alarm asserted (alarm state but not acknowledged)
- alarm resettable (alarm state back to normal but not acknowledged)
- alarm acknowledged (alarm state acknowledged by the user)

Transitions between these states are controlled by a combination of events and user actions. Each of these states is discussed in more detail in the following subsections.

Not Alarmed

When no alarms are active, the Power Monitor unit is in its normal state of operation, or "not alarmed."

Alarm Asserted

When the Power Monitor unit detects an alarm event, the corresponding alarm goes active, and it generates a message describing the alarm, which appears in the Event Log and (if configured to do so) at the bottom of the active screen. If several alarms occur in short sequence, only the latest alarm is displayed at the bottom of the screen, but entries for all alarms appear in the Event Log.

If a screen is displayed that shows a device menu or a system diagram, the name or symbol of the affected circuit flashes in boldface. If you have configured the alarm to "Log only," the alarm message is added to the Event Log. If you have configured the alarm to "Sound and Log," a tone sounds at the Power Monitor unit each time it detects an alarm, and an entry is added to the Event Log.

Alarm Resettable

When the data value or change in status that triggers an alarm returns to within the preset limits, the acknowledged alarm returns to normal display.

If the value or status change returns to within the preset limits before the alarm is acknowledged, the audible alarm becomes silent, but the device continues to flash in boldface on affected screens until the alarm is reset by pressing "C."

Alarm Acknowledged

From any Power Monitor unit screen except the screens for discrete inputs, pressing C (Clear Alarms) acknowledges all alarms that are currently active. The Discrete alarms must be acknowledged from the discrete input screen, and only alarms for discrete inputs displayed on the active screen are acknowledged by pressing C to clear alarms.

On any device menu or system diagram screen, the alarmed device or circuit changes from flashing boldface to plain boldface to indicate that the alarm has been acknowledged. However, the alarm is not resettable as long as the data value that triggered the alarm remains outside the set limits, or as long as the detected status which caused the alarm remains in the alarm state.

2.6 Displaying the System Diagnostic Log

The System Diagnostic Log records information about system errors that are not data related, such as communications and hardware errors. This log is intended primarily to help Siemens personnel diagnose system problems, but any user can view the log by following the steps in this section.

Note: Though messages in the System Diagnostic Log may imply a serious error, they usually indicate only a diagnostic warning.

2 Displaying System and Device Information

The System Diagnostic Log records the 64 most recent nondata errors since the Power Monitor unit was last powered up. In most other ways it is similar to the Event Log in the kind and format of information. The System Diagnostic Log lists up to 64 entries in reverse chronological order, ending with the "Powered up" message. Like the Event Log, entries in this log contain the following basic information in the order listed:

1. Date of occurrence of the event or alarm
2. Time of occurrence of the event or alarm
3. Message pertaining to the event or alarm, including
 - circuit name
 - device type
 - description of the data error

To display the Power Monitor unit's System Diagnostic Log, follow these steps:

1. Select "Display Configuration" from the Main Menu, and the Configuration Menu appears.
2. From the Configuration Menu, select "System Diagnostic Log," and the System Diagnostic Log appears:

```
Power Monitor PC          Screen 1.5.4          15:10 Oct 6, 1992
SYSTEM DIAGNOSTIC LOG
Cursor line number: 1
These messages do not necessarily
indicate any failure in your system
10/06/92 15:10:23 Feeder 3 STIIICP: Diagnostic code 1
10/06/92 15:10:21 Feeder 2 4700: Diagnostic code 1
10/06/92 15:10:21 Feeder 3 STIIICP: Diagnostic code 1 type 1
10/06/92 15:10:19 Feeder 2 4700: Diagnostic code 1 of 4 type 2
10/06/92 15:10:18 Feeder 3 STIIICP: Diagnostic code 1
10/06/92 15:10:17 Feeder 2 4700: Diagnostic code 1
10/06/92 15:10:17 Feeder 3 STIIICP: Diagnostic code 1 type 1
10/06/92 15:10:16 Feeder 2 4700: Diagnostic code 1 of 22 type 2
10/06/92 15:10:16 Feeder 3 STIIICP: Diagnostic code 1
10/06/92 15:10:15 Feeder 2 4700: Diagnostic code 1
10/06/92 15:10:14 Feeder 2 4700: Diagnostic code 1 type 1
10/06/92 15:10:14 Feeder 3 STIIICP: Diagnostic code 1 of 12 type 2
10/06/92 15:10:12 Feeder 2 4700: Diagnostic code 1
10/06/92 15:10:12 Feeder 3 STIIICP: Diagnostic code 1
10/06/92 15:10:11 Feeder 2 4700: Diagnostic code 1 type 1
10/06/92 15:10:11 Feeder 3 STIIICP: Diagnostic code 1 type 1
10/06/92 15:10:05 Feeder 3 STIIICP: EEPROM error
```

Screen 1.5.4. System Diagnostic Log

For a more detailed discussion of specific messages on the System Diagnostic Log, refer to Appendix A, "Error and Alarm Messages."

2.7 Displaying Discrete Inputs

Discrete input displays provide status indicators of dry-type contacts, pulse counters, etc., that are monitored by the 3600 and 4700 power meters and by SAMMS devices. These devices communicate the present condition of their discrete inputs to the Power Monitor unit during data polling. Discrete inputs are of two basic types: 2-state inputs and counter inputs. These are described as follows:

1. *Two-state inputs* exist in one of two states, On or Off. However, the Power Monitor unit allows you to configure the names and states to reflect the situations that occur on your system, such as high and low temperature, breaker and switch position, and the like.
2. *Counter inputs* provide a count of the number of times an input is activated. For example, you can configure a counter input to reflect the number of tripping operations for a breaker, the number of pulses from a utility KW demand meter, or the number of breaker or switch operations for some other device on your system. SAMMS devices do not offer a counter input.

The Discrete Inputs screen lists by number, name, and status all discrete inputs you configured at the Power Monitor unit. (For information on configuring discrete inputs, refer to section 3.6 below.) Each discrete input can have a name of up to 20 characters, and each of the input's two states may be described in a string of up to 10 characters. When displayed on the Discrete Inputs screen, counters show their accumulated value, and 2-state inputs show their status.

To view the Discrete Inputs screen for your system, follow these steps:

1. Select "Display Discrete Inputs" from the Main Menu. The Discrete Inputs screen (1.4) appears:

```
Power Monitor          Screen 1.4          9:00 Apr 14, 1992
Discrete Inputs:
Name:                  Status:
1 KW Hours             15743
2 KW Pulse             On
3 Transformer Temp.   Low
4 Cooling Fans         Off
5 Water Level          OK
```

Screen 1.4. Discrete Inputs Screen

2. If the list of inputs extends beyond one page, the Discrete Inputs screen scrolls automatically through the list of inputs at the system diagram scan rate defined in Global Settings (screen 1.5.3). You can also use the Arrow keys to scroll through the list. Press Enter to pause the automatic scrolling.
3. When you finish viewing the Discrete Inputs screen, press F6 to return to the Main Menu.

2 Displaying System and Device Information

2.8 Displaying Configuration Information

The Power Monitor unit can display information on the configuration of your entire system as well as every field device that communicates with your system. Specifically, Configuration information comprises the following:

- Circuit Configuration
- System Diagrams
- Global Parameters
- System Diagnostic Log

To display any of this information, first select "Display Configuration" from the Main Menu. When the Configuration Menu (screen 1.5) appears, select one of the items from the menu and proceed to the screen that contains the information you want to display.

Note: In most cases, your system has been configured for you prior to shipment from the factory. In normal, day-to-day operation, you will not usually alter the configuration of your system or of devices on your system; therefore, we do not describe Configuration information in detail at this point in the manual. For a complete discussion of each kind of Configuration information, as well as device-specific configuration screens, refer to section 3, "Configuring Your System and Field Devices."

2.9 Clearing Device Data

Periodically, you may need to clear, or reset, selected data for some or all of the devices on your system. For example, you may want to clear KWHR data at the end of a billing cycle. You can accomplish this task from the system's Clear Menu.

The Clear Menu displays all the circuits and devices configured for your system. The Power Monitor unit allows you to clear the following data quantities from your system:

- KW/KVAR Hours
- Min/Max Values
- Input Counts (discrete input counters)
- Motor Hours

You can clear these quantities from all devices on your system at once or from individual devices which you select from the Clear menu.

Note: Min/Max Data screens record the time and date that each device was last cleared.

To clear data from any or all the devices on your system, follow these steps:

1. Select Clear Device Data from the Main Menu. The Clear Menu: Password Required screen appears.
2. Enter your password, and the Clear Menu appears:

Power Monitor		Screen 1.6	9:17 Apr 14, 1992
Clear menu:			
Name	Devices Available	Key Assignment	
Main A	4700 STIIC	Arrows = Cursor	
Main B	4700 STIIC	1 = Clear All KW/KVAR Hrs	
MCC 1	STIICP	2 = Clear All Min/Max	
MCC 2	STIICP	3 = Clear All Input Counts	
Feeder 1	STIICP	4 = Clear All Motor Hrs	
Feeder 2	STIICP	F1 = Clear Device KW/KVAR Hrs	
Feeder 3	STIICP	F2 = Clear Device Min/Max	
Feeder 4	STIICP	F3 = Clear Device Input Count	
		F4 = Clear Device Motor Hrs	
		F6 = Return	
		C = Clear Alarms	

Screen 1.6. Clear Menu

3. To clear data from a single device, select it with the cursor and press the appropriate key (F1-F4) to clear the data. Or to clear data of one kind from all devices, press the appropriate key (1-4) to clear the data.
4. When you finish clearing device data, press F6 to return to the Main Menu.

Even though you may clear data from one or more devices, the Power Monitor unit continues to acquire new data according to how it has been programmed to operate under normal conditions.

3 Configuring Your System and Field Devices

The configuration information for your system and its field devices encompasses a major portion of the Power Monitor program and screens. In this section of the program, you define circuits and configure the devices attached to those circuits. You also define the system diagrams for your system, and you establish the global settings that determine how your system operates as a whole.

In defining circuits and configuring devices, you are telling the Power Monitor unit how your electrical distribution system is set up, so that it can properly collect and display data from all the field devices. You tell the Power Monitor unit what circuits your system comprises and what devices are attached to those circuits. And you tell it how the specific devices are to operate in collecting data and sending it to the Power Monitor unit. In addition to configuring a device to provide certain information, you can also establish the device's alarm limits, protective settings, and discrete input settings (except for those devices that do not offer all these features).

The Power Monitor unit allows you to create up to 16 system diagrams to graphically represent all or various parts of your system on a single screen. In addition to the graphical representation, these diagrams also provide real-time data. The Power Monitor unit also allows you to establish the global settings by which your system operates, including such settings as the system password, the scan rate of diagrams, the system clock and calendar, and the baud rate of communications.

Normally, your system is installed and configured for you, but as your needs change, you may need to change the configuration of certain parts of your system. This section, "Configuring Your System and Field Devices," describes the following tasks associated with configuring your system:

- setting global settings
- configuring circuits
- configuring field devices
- defining system diagrams

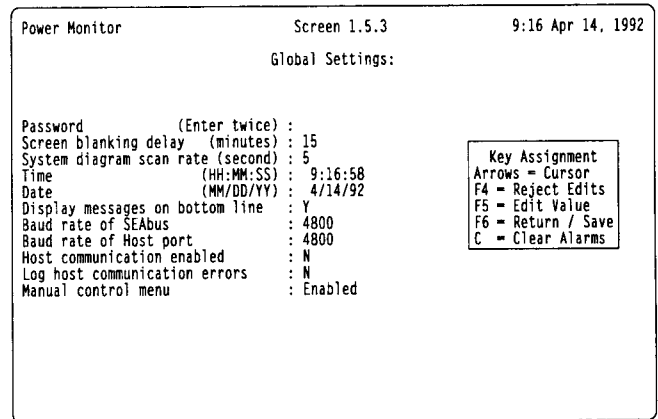
Note: Whenever you change the configuration of your system, it helps to use a keyboard that offers a full selection of alphanumeric characters. The socket on the front of the Power Monitor unit accommodates an IBM PC-XT keyboard, which you may want to attach during configuration. The larger selection of characters will make it easier to name circuits and other information fields throughout the program.

3.1 Global Settings

One of the configuration functions of the Power Monitor unit allows you to establish the global settings that define certain general parameters of operation, such as your password, the system time and date, and whether messages are displayed and errors are logged.

To set or alter any of the global settings, follow these steps:

1. From the Main Menu, select "Display Configuration" and the Configuration menu appears.
2. Select Global Settings from the Configuration Menu (screen 1.5). The Global Settings screen appears:



Screen 1.5.3. Global Settings Screen

3. Move the cursor to the desired field, and press F5 to edit the value in that field.
4. Enter the new information and press F6 to save the new settings. Press F6 again to return to the Configuration Menu.

The remainder of this section describes the individual fields on the Global Settings screen.

Password

The password protects access to all configuration screens. It is also required for clearing entries in the Event Log and for clearing data from the devices on your system. You may use up to 10 alphanumeric characters for your password. To change your password, you are required to enter it twice to ensure it is correct.

Note: All Power Monitor units are shipped from the factory with the password "1." If you program your system's password with a keyboard, be sure to use only characters found on the Power Monitor unit's keypad, so that you will not need a keyboard each time you want to gain access to your system.

If you ever lose your password, call your Siemens representative to get the master password for your system.

3 Configuring Your System and Field Devices

Screen blanking delay

To increase the life of the display, the Power Monitor unit is programmed to blank the Main Menu screen when the unit has not been used for a certain amount of time. You program the screen blanking delay from 1 to 32767 minutes, or set it to 0 if you want the screen to remain on continually; however, allowing the screen to remain on continually is not recommended.

System diagram scan rate

This value controls the rate at which your system diagrams cycle when you choose "Display System Diagrams" from the Main Menu. You can program the scan rate from 1 to 32767 seconds.

Time

Enter the time in hours, minutes, and seconds using the 24-hour format to set the system clock. (The colons are entered automatically.) All devices that have clocks are synchronized with the Power Monitor unit's clock by a global command broadcast to all devices.

Date

Enter the date by month, day, and year to set the system date. (The slashes are entered automatically.) All devices that have calendars are synchronized with the Power Monitor unit's calendar by a global command broadcast to all devices.

Display messages on bottom line

Enter Y(es) or N(o) to indicate whether system messages are to be displayed on the bottom line of the active screen.

Baud rate of SEAbus

Select the communication baud rate for the RS-485 port. Use the Arrow keys to toggle between choices. Make sure that you select a baud rate that is compatible with every device that is communicating with the Power Monitor unit. The following table gives you the acceptable baud rates for each device supported by the Power Monitor unit.

Device	Baud Rates
3600 power meter	300, 600, 1200, 2400, 4800, 9600, 19,200
4300 power meter	300, 1200, 2400, 4800, 9600, 19,200
4700 power meter	300, 1200, 2400, 4800, 9600, 19,200
Static Trip IIC trip unit	2400, 4800
Static Trip IIIC trip unit	2400, 4800, 9600
SAMMS device	4800, 9600
SCOR relay	300, 600, 1200, 2400, 4800, 9600, 19,200
Sensitrip III trip unit	4800, 9600
Type SB systems breaker	4800, 9600

Note: Once the baud rate is set initially, you will need to change it only rarely, if ever. Carefully consider any changes to the baud rate because the baud rate of devices attached to the Power Monitor unit will also change. The changes to devices occur automatically with the change in the Power Monitor unit's baud rate when the Power Monitor unit next issues a global broadcast command message.

Baud rate of Host port

Select the communication baud rate of the port used to connect the Host PC. Use the Arrow keys to toggle between choices.

Host communication enabled

Select Y(es) to enable or N(o) to disable communication via the port for the Host PC.

3 Configuring Your System and Field Devices

Log host communication errors

Enter Y(es) or N(o) to indicate whether errors in the host communication will be posted on the System Diagnostic Log. For more information about the System Diagnostic Log, refer to section 2.6 above.

Manual control menu

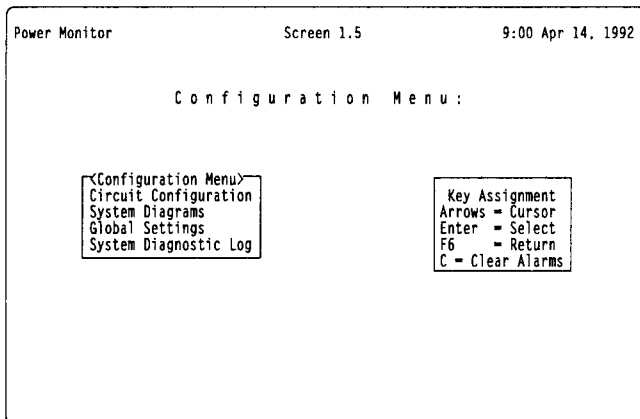
Select Enabled or Disabled to indicate whether to allow manual control of circuits and devices on your system. Use the Arrow keys to toggle between choices. If you enable the Manual Control Menu, it will be added to the end of the list of choices on the system's Main Menu. For complete information about this option on your system, refer to section 4 "Manual Control of Field Devices."

3.2 Configuring Circuits

Configuring circuits involves identifying for the Power Monitor unit the circuits that make up your distribution system and the ACCESS field devices that are attached to those circuits. For example, you may be using an electric motor on one circuit, which you are protecting with a SAMMS motor protection and control relay. Another circuit may be monitored by a 4700 power meter and protected by a SCOR relay. In any case, you want to give each circuit a distinct and appropriate name to identify it throughout the Power Monitor program, and you want to tell the Power Monitor unit that it will receive data information about the circuit from the ACCESS devices attached to it.

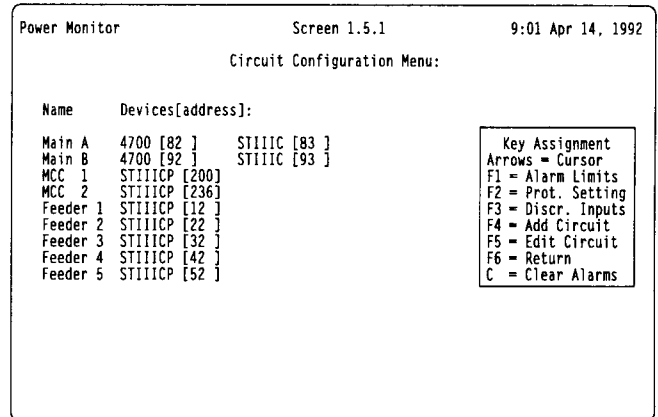
The Power Monitor unit lets you define new circuits, edit existing circuits, or delete circuits from your system. To perform any of these tasks, you must first arrive at the Circuit Configuration Menu by following these steps:

1. Select "Display Configuration" from the Main Menu, and the Configuration Menu appears:



Screen 1.5. Configuration Menu

2. Select "Circuit Configuration" from the Configuration Menu and the Circuit Configuration Menu appears:

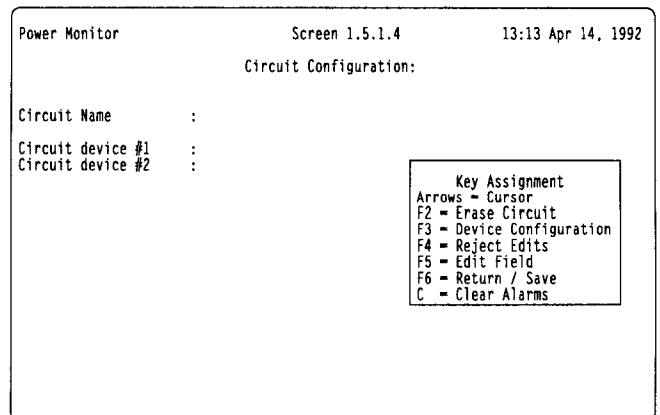


Screen 1.5.1. Circuit Configuration Menu

The Circuit Configuration Menu lists by name all the circuits currently defined for your system. As you can see by the Key Assignment box, this menu also gives you access to several configuration functions.

To add a circuit to your system, follow these steps:

1. Press F4 and the Circuit Configuration screen appears:



Screen 1.5.1.4. Circuit Configuration Screen

2. The cursor is positioned on the Circuit Name field. Press F5 to edit the field, and type in an appropriate name for the circuit, using up to eight alphanumeric characters. Press Enter. (Remember that you may find it helpful to attach a full-size keyboard to the Power Monitor unit for configuring circuits and devices.)

3 Configuring Your System and Field Devices

3. Move the cursor to the "Circuit device #1" field, and press F5. Use the Arrow keys to toggle through the list of devices supported by the Power Monitor unit. When the device you want to add to this circuit appears in the field, press Enter.
4. If you want to add a second device to this circuit, repeat the previous step for the "Circuit device #2" field.
5. When you finish defining the circuit, press F6 to save the changes and return to the Circuit Configuration Menu. Or you can reject all the changes you have just made by pressing F4 to return to the Circuit Configuration Menu.

Once you have added a circuit to your system, you need to configure the devices attached to that circuit. Configuring devices is discussed in section 3.3 below.

To edit an existing circuit, follow these steps:

1. Move the cursor to the line on the Circuit Configuration Menu (screen 1.5.1) that contains the circuit you want to edit, and press F5. The Circuit Configuration screen for that circuit appears.
2. To edit the Circuit Name, move the cursor to that field, and press F5. Type in the new Circuit Name, and press Enter.
3. If you need to change one or both of the devices attached to the circuit, you can do so by first erasing the circuit. Then press F2, and follow the procedure above for adding a circuit. You can also erase a single device from its device configuration screen (refer to section 3.3 below) by pressing F3 to erase the device and then pressing F1 to confirm the deletion.

Once you have edited a circuit, you may need to configure devices on that circuit. If so, refer to section 3.3 "Configuring Devices."

To delete an existing circuit, follow these steps:

1. Move the cursor to the line on the Circuit Configuration Menu (screen 1.5.1) that contains the circuit you want to delete, and press F5. The Circuit Configuration screen (1.5.1.4) for that circuit appears.
2. Press F2 to delete the circuit. The Power Monitor unit prompts you then to press F1 to confirm the deletion. When you complete the deletion, the Power Monitor unit returns you to the Circuit Configuration Menu.

3.3 Configuring Devices

Whenever you define a new circuit for your system, as described in the preceding section, you need to configure the devices on that circuit so that the Power Monitor unit knows how to collect data from them. At other times, you may want to reconfigure a device already on your system, to instruct the Power Monitor unit to change some of the data collection parameters for that device. And finally, you may simply want to view the configuration parameters for a particular device. In each case, you perform the tasks or get the information you need from the device's configuration screen.

To get to the Device Configuration screen for any device on your system:

1. From the Main Menu, select "Display Configuration." The Configuration Menu (screen 1.5) appears.
2. From the Configuration Menu, select "Circuit Configuration." The Circuit Configuration Menu (screen 1.5.1) appears.
3. On the Circuit Configuration Menu, use the Up and Down Arrow keys to move the cursor to the line with the circuit that contains the device you want to configure, and press F5. The Circuit Configuration screen (1.5.1.4) appears.
4. On the Circuit Configuration screen, use the Up and Down Arrow keys to move the cursor to the device that you want to configure, and press F3. The Device Configuration screen for that device type appears.

Device Configuration screens list the various parameters of operation for the device. Once you configure a device for basic operation, you can then define alarm limits, protective settings, and discrete inputs, each of which are discussed in other sections of this manual.

Note: The Power Monitor screens for configuration, alarm limits, and protective settings give two values for each parameter: the Power Monitor value and the device value. For most devices, these values appear in separate columns on the same screen; however, because of the amount of information for some devices, this information is sometimes presented on separate screens (that is, the Power Monitor values are shown by themselves on the first screen, and the device values are shown on a second screen). Whenever, the information you need is presented in this way, use the "A" key to toggle between the two screens. Section 3.4.2 offers an example of this kind of screen.

Before you actually configure a device, you need to know a little about the various functions associated with configuration. These functions are initiated with the Function keys in the Key Assignment box on each Device Configuration screen. With few exceptions, the Function key assignments remain constant across all screens; however, some screens do not support all functions. The following list shows you the Function key assignments for Device Configuration screens (functions marked with an asterisk (*) require you to enter the password):

F1	=	Configure to Device*
F2	=	Confirm Settings
F3	=	Erase Device*
F4	=	Reject Edits*
F5	=	Modify Field*
F6	=	Return/Save
A	=	Program Address*
B	=	Set Breaker Operation
C	=	Clear Alarms
D	=	Universal Request*
E	=	Configure from Device
F	=	Find Address*

Each of these functions is described next.

3 Configuring Your System and Field Devices

Configure to Device (F1)

If any Power Monitor values listed differ from the device values listed, you may choose to have the Power Monitor values downloaded to the device from the Power Monitor unit by pressing F1. Any time you configure a device, you must execute this function for any changes to be downloaded to the device. The Power Monitor unit must be communicating with the device to perform this function.

Confirm Settings (F2)

With this function the Power Monitor unit polls the device to confirm that the device values for each parameter shown on the Power Monitor unit match the actual values currently programmed into the device. If the values programmed into the device are the same as the device values shown on the Power Monitor unit, the Power Monitor unit signals "Test Passed" at the bottom of the screen. If the values are different, the Power Monitor unit signals "Configuration Discrepancy" at the bottom of the screen. If the Power Monitor unit does not detect a device, it signals "No Valid Response Message." Use this function to ensure that the Power Monitor unit has up-to-date information from the device before you consider making any changes in its configuration.

Erase Device (F3)

This function enables you to delete a device from a circuit. Press F3 from any point on the Device Configuration screen to delete the device from the circuit. The Power Monitor unit prompts you to confirm the deletion by pressing F1 or to cancel the deletion and return to the Device Configuration screen by pressing F6.

Reject Edits (F4)

This function allows you to reject any changes you have made but have not saved by pressing F6. Any changes previously made and then saved by pressing F6 cannot be rejected; however, you can reenter them by using the F5 key to edit a field. Also, you cannot reject a deletion (of the kind accomplished with F3) after you confirm that deletion.

Edit Field (F5)

This function lets you change the value of any configurable field on the Power Monitor unit. Use the Arrow keys to highlight a field to edit (modify), and press F5. Then type in the changes to the field, and press Enter.

Return/Save (F6)

This function allows you to save any changes you have made on the Device Configuration screen. Be sure to configure the changes to the device by pressing F1 before you Return/Save. If you forget, the Power Monitor unit prompts you with the question, "Exit without configuring device?" At this point, pressing F6 again allows you to leave the screen without configuring the device.

Program Address (A)

This function enables you to change a device's address. Move the cursor to the device's address field and press A. You must use this function to change a device's address; if you edit the address field by pressing F5 and typing in a new address, you only change the device with which the Power Monitor unit is communicating.

Note: Addresses for SAMMS devices and Static Trip III devices *must* be unique both within and across their individual device types. That is, a SAMMS device may not have the same address as either another SAMMS device or a Static Trip III device. Addresses for all other devices must differ only within individual categories of device type (for example, a 4700 power meter may have the same address as a SCOR relay but not another 4700 power meter). Failure to assign unique addresses as indicated will result in communication errors for all devices having conflicting addresses. For more information on establishing communications and address, refer to *Installing the ACCESS System* (manual no. SG-6028).

Set Breaker Operations (B)

This function is found only on the Device Configuration screen for Static Trip III/CP trip units (screen 1.5.1.4.6). After you edit the Breaker Operations field, you must use this function to configure the change to the device; pressing F1 (Configure To Device) does not configure the Breaker Operations to the trip unit.

Clear Alarms (C)

This function allows you to acknowledge alarms, causing them to stop flashing on the Power Monitor screen and to stop sounding an alarm at the Power Monitor unit (if the alarm is configured to sound). However, the alarmed item (screen) remains highlighted until the conditions that caused the alarm are resolved (that is, until the values return to within preset limits).

Universal Request (D)

This function offers a quick way to establish communication with a particular device whose address is unknown. You can initiate a Universal Request from a Device Configuration screen to cause the Power Monitor unit to search for a device of the same type that is not communicating with the Power Monitor unit. The Power Monitor unit responds with the device's address and baud rate. If the baud rate is different from the one established on the Global Settings screen, the device's baud rate is reset to match that of the Power Monitor unit's baud rate. (For more information, refer to section 3.1, "Global Settings.")

Note: The Universal Request works when the Power Monitor unit finds only one device of the type it searches for; if the Power Monitor unit finds more than one device of the same type (that is, 4700 meters, SCOR relays, etc.), its response is garbled.

3 Configuring Your System and Field Devices

Configure from Device (E)

This function is the opposite of Configure to Device (F1). You may find that you want to download the device's present configuration parameters to the Power Monitor unit before you make any changes. In this case, the values are configured *from* the device to the Power Monitor unit, thus replacing the Power Monitor unit's configuration with the device's configuration by pressing E. The Power Monitor unit must be communicating with the device to perform this function.

Find Address (F)

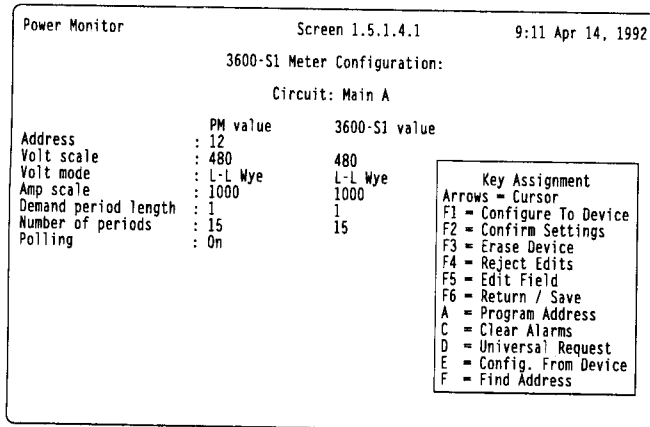
This function, which is only available on device configuration screens, causes the Power Monitor unit to search all unassigned addresses for a device that is not communicating. It searches only for a device of the same type as defined by the active configuration screen. Use this function when you want to determine the unknown address of a device that you are adding to the communications loop. When the Power Monitor unit finds a device of the specific type with a previously unassigned address, it enters that device's address in the Power Monitor column on the configuration screen.

Note: When you search for an address using this function, make sure you have only one device of the specified type attached to the communications loop because the Power Monitor unit reads the first unassigned address it finds. If you want to assign a new address, use the Program Address function.

The remainder of section 3.3 describes the Device Configuration screen for each device supported by the Power Monitor unit.

3.3.1 Configuring 3600 Power Meters

This section describes the parameters on the configuration screen for 3600 power meters. The next illustration shows the configuration screen, and it is followed by definitions for each of the parameters.



Screen 1.5.1.4.1. Configuration Screen for 3600 Power Meters

Address

Enter an integer from 1 to 9999. Although the address is set at the factory, you can change it if you need to. The address *must* be that of the actual power meter used on the selected circuit.

Volt scale

Enter an integer from 1 to 999,999. Normally, you set the volt scale to match the system's VAC rating (120 for a 120 VAC system, 480 for a 480 VAC system, etc.). If you use voltage transformers (VTs) to connect the meter to a high-voltage system, you should set the volt scale to match the *primary rating of the VT*, but do so *only* if the VTs have secondaries rated at 120 VAC. If the secondaries of the VTs are *not* rated at 120 VAC, use the following formula to determine the volt scale:

$$\frac{\text{VT Primary Rating} \times 120 \text{ VAC}}{\text{VT Secondary Rating}}$$

Volt mode

The manner by which voltage is measured. Use the Arrow keys to toggle between the following choices:

- Wye L-L
- Wye L-N
- Delta
- Demo

The Demo mode lets you program the meter for a demonstration by giving the appearance that it is sending live data.

Amp scale

Enter an integer from 1 to 32767. Normally, you set the amp scale to match the primary rating of the current transformers (CTs) but *only* if the CTs are rated for a 5A full-scale output. If the CTs are *not* rated for a 5A full-scale output, use the following formula to determine the amp scale:

$$\frac{\text{CT Primary Rating} \times 5A}{\text{CT Secondary Rating}}$$

Demand period length

Enter a value from 1 to 99 to set the length of the demand period in minutes, or enter 0 to synchronize the demand period with the meter's Status Input #4. This value is used by the meter in calculating KW Demand. Refer to the meter's user guide for more information about demand.

Number of periods

Enter a value from 1 to 15 to indicate the number of demand periods to be averaged in calculating demand.

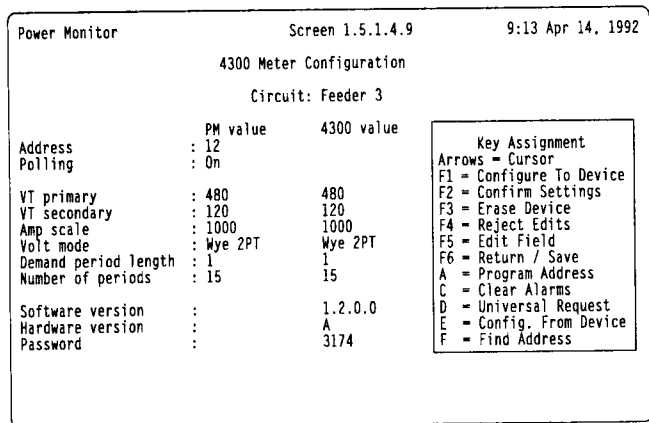
3 Configuring Your System and Field Devices

Polling

Select On or Off. When set to On, the Power Monitor unit polls, or interrogates, the meter for information. When set to Off, the Power Monitor unit does not poll the meter. The Off setting is useful when taking the device off line for service to prevent "No Response" alarms from occurring, which slows down responses from other devices.

3.3.2 Configuring 4300 Power Meters

This section describes the parameters on the configuration screen for 4300 power meters. The next illustration shows the configuration screen, and it is followed by definitions for each of the parameters.



Screen 1.5.1.4.9. Configuration Screen for 4300 Power Meters

Address

Enter an integer from 1 to 254. Although the address is set at the factory, you can change it if you need to. The address *must* be that of the actual power meter used on the selected circuit.

Polling

Select On or Off. When set to On, the Power Monitor unit polls, or interrogates, the meter for information. When set to Off, the Power Monitor unit does not poll the meter. The Off setting is useful when taking the device off line for service to prevent "No Response" alarms from occurring, which slows down responses from other devices.

VT primary

Enter an integer from 1 to 999,999 to match the primary rating of the voltage transformer.

VT secondary

Enter an integer from 1 to 999,999 to match the secondary rating of the voltage transformer.

Amp scale

Enter an integer from 1 to 32767. Normally, you set the amp scale to match the primary rating of the current transformers (CTs) but *only* if the CTs are rated for a 5A full-scale output. If the CTs are *not* rated for a 5A full-scale output, use the following formula to determine the amp scale:

$$\frac{\text{CT Primary Rating} \times 5\text{A}}{\text{CT Secondary Rating}}$$

Volt mode

The manner by which voltage is measured. Use the Arrow keys to toggle between the following choices:

- Wye 3PT
- Wye 2PT
- Delta
- Single Phase
- Demo

The Demo mode lets you program the meter for a demonstration by giving the appearance that it is sending live data.

Demand period length

Enter a value from 1 to 99 to set the length of the demand period in minutes. This value is used by the meter in calculating KW Demand. Refer to the meter's user guide for more information about demand.

Number of periods

Enter a value from 1 to 15 to indicate the number of demand periods to be averaged in calculating demand.

Software version

Read by the Power Monitor unit. This field indicates the version of the software operating in the meter.

Hardware version

Read by the Power Monitor unit. This field indicates the version of the meter's hardware.

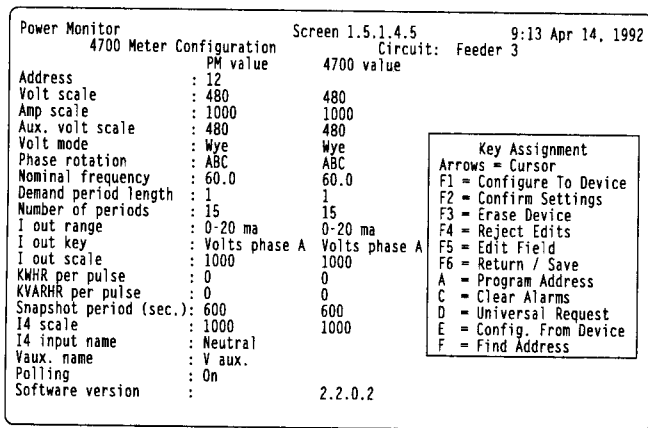
Password

Read by the Power Monitor unit. This field indicates the password that has been programmed into the meter itself.

3.3.3 Configuring 4700 Power Meters

This section describes the parameters on the configuration screen for 4700 power meters. The next illustration shows the configuration screen, and it is followed by definitions for each of the parameters.

3 Configuring Your System and Field Devices



Screen 1.5.1.4.5. Configuration Screen for 4700 Power Meters

Address

Enter an integer from 1 to 254. Although the address is set at the factory, you can change it if you need to. The address *must* be that of the actual power meter used on the selected circuit.

Volt scale

Enter an integer from 1 to 999,999. Normally, you set the volt scale to match the system's VAC rating (120 for a 120 VAC system, 480 for a 480 VAC system, etc.). If you use voltage transformers (VTs) to connect the meter to a high-voltage system, you should set the volt scale to match the *primary rating of the VT*, but do so *only* if the VTs have secondaries rated at 120 VAC. If the secondaries of the VTs are *not* rated at 120 VAC, use the following formula to determine the volt scale:

$$\frac{\text{VT Primary Rating} \times 120 \text{ VAC}}{\text{VT Secondary Rating}}$$

Amp scale

Enter an integer from 1 to 32767. Normally, you set the amp scale to match the primary rating of the current transformers (CTs) but *only* if the CTs are rated for a 5A full-scale output. If the CTs are *not* rated for a 5A full-scale output, use the following formula to determine the amp scale:

$$\frac{\text{CT Primary Rating} \times 5A}{\text{CT Secondary Rating}}$$

Aux. volt scale

Enter an integer from 1 to 999,999. The auxiliary volt scale indicates what the meter will display when a 1 VAC/VDC full-scale input signal is applied to the meter's auxiliary voltage input.

Volt mode

The manner by which voltage is measured. Use the Arrow keys to toggle between the following choices:

- Wye
- Delta
- Single Phase
- Demo

The Demo mode lets you program the meter for a demonstration by giving the appearance that it is sending live data.

Phase rotation

Select either ABC or ACB to specify the normal phase sequence of the system. The meter uses this setting as the set point to detect phase reversal and to detect the Power Factor polarity in Delta mode.

Nominal frequency

Enter an integer from 0 to 65,535. The nominal frequency is the same as the frequency of the power line (normally 60Hz). The power meter's clock uses this value to ensure accurate timekeeping.

Demand period length

Enter a value from 1 to 99 to set the length of the demand period in minutes, or enter 0 to synchronize the demand period with the meter's Status Input #4. This value is used by the meter in calculating KW Demand. Refer to the meter's user guide for more information about demand.

Number of periods

Enter a value from 1 to 15 to indicate the number of demand periods to be averaged in calculating demand.

I_{out} range

Select whether the proportional current of the auxiliary current output is 0 to 20 mA or 4 to 20 mA.

I_{out} key

Choose to which of the meter's measured parameters the current output will be proportional. Use the Arrow keys to scroll through the choices.

I_{out} scale

Enter an integer from 1 to 999,999. This value specifies what value of the I_{out} key will generate full-scale output on the meter's auxiliary current output. For example, set the I_{out} range at 4 to 20 mA, set the I_{out} key as Volts phase A, and set the I_{out} scale at 1000. Whenever the voltage on phase A reaches

3 Configuring Your System and Field Devices

1000 volts, I_{out} will be generating a 20 mA current. Or whenever the voltage on phase A reaches 500 volts, I_{out} will be generating a 12 mA current. In this way, I_{out} is always proportional to whatever quantity is specified as the I_{out} key.

KWHR per pulse

Enter an integer from 1 to 65,535, or enter 0 to disable this feature. This value indicates the number of KW hours between KW hour pulses on Relay 3.

KVARHR per pulse

Enter an integer from 1 to 65,535, or enter 0 to disable this feature. This value indicates the number of KVAR hours between KVAR hour pulses on Relay 2.

Snapshot period (sec.)

Enter an integer from 1 to 4,294,967,295 ($2^{32}-1$). This value indicates the number of seconds between the meter's "snapshots" of its data. The 4700 meter stores the 100 most recent snapshots in its internal memory. You can view snapshots on the Summary Data and Detail Data screens.

I_4 scale

Enter an integer from 1 to 32767. Normally, you set the I_4 scale to match the primary rating of the current transformer (CT) for I_4 , but only if the CT is rated for a 5A full-scale output. If the CT is not rated for a 5A full-scale output, use the following formula to determine the amp scale:

$$\frac{\text{CT Primary Rating} \times 5A}{\text{CT Secondary Rating}}$$

I_4 input name

Enter up to 10 characters as a label for the optional fourth current input. This field is used only by the Power Monitor unit as a label for I_4 on data screens.

V_{aux} name

Enter up to 10 characters as a label for the auxiliary volt scale. This field is used only by the Power Monitor unit as a label for V_{aux} on data screens.

Polling

Select On or Off. When set to On, the Power Monitor unit polls, or interrogates, the meter for information. When set to Off, the Power Monitor unit does not poll the meter. The Off setting is useful when taking the device off line for service to prevent "No Response" alarms from occurring, which slows down responses from other devices.

Software version

Read by the Power Monitor unit. This field indicates the version of the software operating in the meter.

3.3.4 Configuring Static Trip III Trip Units

This section describes the parameters on the configuration screens for Static Trip IIIC and Static Trip IIICP trip units. It first presents the parameters common to both trip units and then presents the additional parameters found only on the configuration screen for the Static Trip IIICP.

Note: When you configure Static Trip III trip units from the Power Monitor unit, you normally configure them as Static Trip IIICP trip units since this model replaces all earlier versions of the trip unit; however, if you continue to use any of these earlier versions, you need to make sure that you configure them correctly at the Power Monitor unit. To determine how to configure your Static Trip III trip units, follow these steps:

1. If you have a model IIIC, then you simply configure it as a model IIIC trip unit.
2. If you have a model IIICP, find its software version on the label on the back or side of the trip unit. Then,
 - a. if the software version is 2.01, you *must* configure it as a model IIIC trip unit.
 - b. if the software version is 2.23 or later, you *must* configure it as a model IIICP, even if it does not have the power metering (P) option.
3. If you are still in doubt about how to configure your trip unit, then configure it as a model IIICP; if it fails to communicate with the Power Monitor unit, change its configuration to a model IIIC.

The following illustration shows the configuration screen, and it is followed by definitions for each of the parameters.

Power Monitor Screen 1.5.1.4.2 9:11 Apr 14, 1992

ST III/C Trip Unit Configuration:

Circuit: Sub #1

	PM value	STIIIC value
Address	: 22	
Current sensor rating	: 800	800
Ground sensor rating	: 800	800
Polling	: On	

Key Assignment

- Arrows = Cursor
- F1 = Configure To Device
- F2 = Confirm Settings
- F3 = Erase Device
- F4 = Reject Edits
- F5 = Edit Field
- F6 = Return / Save
- A = Program Address
- C = Clear Alarms
- D = Universal Request
- E = Config. From Device
- F = Find Address

Screen 1.5.1.4.2. Configuration Screen for Static Trip IIIC Trip Units

3 Configuring Your System and Field Devices

Address

Enter an integer from 1 to 224. Although the address is set at the factory, you can change it if you need to. The address *must* be that of the actual trip unit used on the selected circuit.

Phase sensor rating/Current sensor rating

Enter an integer from 1 to 32767, but the normal range is 80 to 4,000. Set the phase/current sensor rating to equal the primary ampere rating of the current sensor on the circuit breaker on which the trip unit is installed.

Ground sensor rating

Enter an integer from 1 to 32767, but the normal range is 80 to 4,000. Set the ground sensor rating to equal the primary ampere rating of the ground sensor associated with the circuit breaker on which the trip unit is installed.

Polling

Select On or Off. When set to On, the Power Monitor unit polls, or interrogates, the trip unit for information. When set to Off, the Power Monitor unit does not poll the trip unit. The Off setting is useful when taking the device off line for service to prevent "No Response" alarms from occurring.

The next illustration shows the configuration screen for the Static Trip IIICP. Note that the parameters described above for the Static Trip IIIC are also contained on the configuration screen for the Static Trip IIICP. Following this illustration are descriptions of the parameters that pertain only to the Static Trip IIICP.

Address	PM value	ST IIICNPX value
Phase sensor rating	: 800	800
Ground sensor rating	: 800	
Volt scale	: 600	600
Volt mode	: 3 wire Delta	3 wire Delta
KW demand length	: 30	30
KW demand periods	: 15	15
Phase rotation	: ABC	ABC
Phase inversion	: Bottom fed	Bottom fed
Comm. close output	: Disabled	Disabled
Comm. trip output	: Manual	Manual
Polling	: On	
Breaker operations	: 4	11
Model	:	CNPX
Software version	:	2.25

Key Assignment

- Arrows = Cursor
- F1 = Configure To Device
- F2 = Confirm Settings
- F3 = Erase Device
- F4 = Reject Edits
- F5 = Edit Field
- F6 = Return / Save
- A = Program Address
- B = Set Brkr Operations
- C = Clear Alarms
- D = Universal Request
- E = Config. From Device
- F = Find Address

Screen 1.5.1.4.6. Configuration Screen for Static Trip IIICP Trip Units

Volt scale

Enter an integer from 1 to 32767. Normally, you set the volt scale to match the system's line-to-line voltage.

Volt mode

Select "3-wire Delta" or "4-wire Wye" to indicate the primary connection of voltage transformers.

KW demand length

Enter a value from 1 to 99 to set the length of the demand period in minutes. This value is used by the trip unit in calculating KW Demand.

(Number of) KW demand periods

Enter a value from 1 to 15 to indicate the number of demand periods to be averaged in calculating demand.

Phase rotation

Select either ABC or ACB to specify the normal phase sequence of the system.

Phase inversion

Select Bottom Fed or Top Fed to indicate whether the power source is fed into the top or the bottom of the circuit breaker.

Comm. close output

Select Manual or Disabled to tell the trip unit whether it can respond to a command from the Power Monitor unit to close the circuit breaker (if the circuit breaker is equipped with this capability). Setting this field to Manual allows the trip unit to respond by closing the circuit breaker.

Comm. trip output

Select Manual or Disabled to tell the trip unit whether it can respond to a command from the Power Monitor unit to trip the circuit breaker. Setting this field to Manual allows the trip unit to respond by tripping the circuit breaker.

Breaker operations

This field provides an ongoing, lifetime count of the breaker's open-and-close cycles.

Model

Read by the Power Monitor unit. This field indicates the model of the Static Trip III attached to the circuit. The letters in this field indicate the following features for the trip unit:

- C = Communications
- N = Neutral Metering
- P = Power Metering
- X = Extended Protection

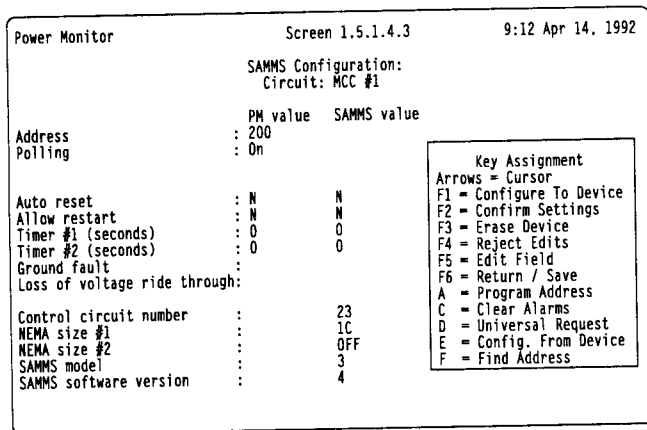
Software version

Read by the Power Monitor unit. This field indicates the version of the software operating in the trip unit.

3 Configuring Your System and Field Devices

3.3.5 Configuring SAMMS Devices

This section describes the parameters on the configuration screen for SAMMS devices. The following illustration shows the configuration screen, and it is followed by definitions for each of the parameters.



Screen 1.5.1.4.3. Configuration Screen for SAMMS Devices

Address

Enter an integer from 1 to 224. Although the address is set at the factory, you can change it if you need to. The address *must* be that of the actual SAMMS device used on the selected circuit.

Polling

Select On or Off. When set to On, the Power Monitor unit polls, or interrogates, the SAMMS device for information. When set to Off, the Power Monitor unit does not poll the SAMMS device. The Off setting is useful when taking the device off line for service to prevent "No Response" alarms from occurring.

Auto reset

Select Y(es) or N(o) to indicate whether the SAMMS device is automatically reset 30 seconds after an overload or an external trip.

Allow restart

Select Y(es) or N(o) to enable the SAMMS device's emergency restart feature.

Timer #1 (seconds)

Enter a value from 1 to 200 (seconds), or enter 0 to disable programmable timer #1. (This feature is available only on SAMMS2 and SAMMS3 models.)

Timer #2 (seconds)

Enter a value from 1 to 200 (seconds), or enter 0 to disable programmable timer #2. (This feature is available only on SAMMS2 and SAMMS3 models.)

Ground fault

Select Enable or Disable. When enabled, the unit's ground fault protection feature opens the contactor coil circuit and stops the motor if it detects a ground current beyond the allowable pickup level for the unit. When disabled, the protection feature is turned off, and the Power Monitor unit only generates a warning message if it detects a ground current beyond the allowable pickup level for the unit. (This feature is optional on all SAMMS models.)

Loss of voltage ride through

Select Enable or Disable. When enabled, this feature allows the motor to be restarted automatically if there is only a brief interruption of power (up to one second).

Control circuit number

Read by the Power Monitor unit. This field indicates the identification number of the control circuit programmed into the SAMMS device. The control circuit defines the unit's starter type, program block, control type, and push-button and light bar assignments.

NEMA size (of overload relay) #1

Read by the Power Monitor unit. This value, which is programmed at the factory, indicates the size of the motor starter on the output for overload relay #1 of the SAMMS device. The size rating is based on the horsepower and voltage rating of the motor controlled by the SAMMS device. On two-speed circuits, overload relay #1 is used to protect motors running at high speed.

NEMA size (of overload relay) #2

Read by the Power Monitor unit. This value, which is programmed at the factory, indicates the size of the motor starter on the output for overload relay #2 of the SAMMS device. The size rating is based on the horsepower and voltage ratings of the motor controlled by the SAMMS device. On two-speed circuits, overload relay #2 is used to protect motors running at low speed.

SAMMS model

Read by the Power Monitor unit. This field indicates the model number of the unit (SAMMS1, SAMMS2, or SAMMS3) attached to the circuit.

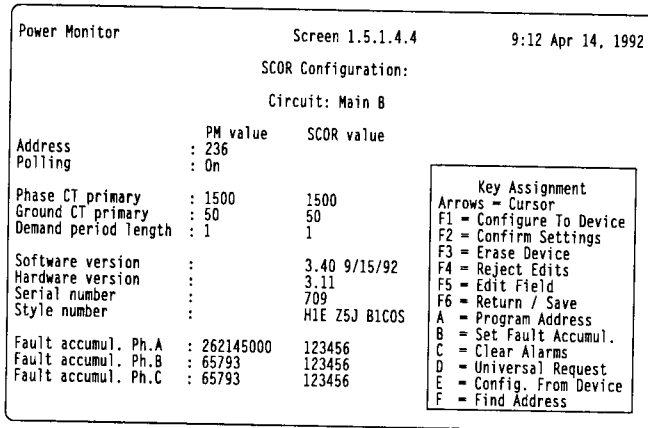
SAMMS software version

Read by the Power Monitor unit. This field indicates the version of the software operating in the SAMMS device.

3 Configuring Your System and Field Devices

3.3.6 Configuring SCOR Relays

This section describes the parameters on the configuration screen for SCOR overcurrent protective relays. The following illustration shows the configuration screen, and it is followed by definitions for each of the parameters.



Screen 1.5.1.4.4. Configuration Screen for SCOR Overcurrent Protective Relays

Address

Enter an integer from 1 to 254. Although the address is set at the factory, you can change it if you need to. The address *must* be that of the actual SCOR relay used on the selected circuit.

Polling

Select On or Off. When set to On, the Power Monitor unit polls, or interrogates, the SCOR unit for information. When set to Off, the Power Monitor unit does not poll the SCOR unit. The Off setting is useful when taking the device off line for service to prevent "No Response" alarms from occurring.

Phase CT primary

Enter a value from 0 to 32767. This value should match the primary rating of the current transformers on the circuit.

Ground CT primary

Enter a value from 0 to 32767. With residual sensing, this value should match the primary rating of the phase current transformers (CT) on the circuit; if you are using a separate ground sensor, this value should match the primary rating of that ground sensor.

Demand period length

Enter a value from 1 to 30 to set the length of the demand period in minutes. This value is used by the relay in calculating Amp Demand. Refer to the SCOR relay's user's manual for more information about demand.

Software version

Read by the Power Monitor unit. This field indicates the version of the software operating in the relay.

Hardware version

Read by the Power Monitor unit. This field indicates the version of the relay's hardware.

Serial number

Read by the Power Monitor unit. This field indicates the serial number of the relay.

Style number

Read by the Power Monitor unit. This field indicates the style number of the relay.

Fault accumul. Ph.A/Ph.B/Ph.C

The fault accumulation fields for each phase differ somewhat from other configuration parameters. The values in the right column (which are read from the relay) are cumulative totals of the interrupted fault current for phases A, B and C. At the time of each overcurrent trip, the amount of current then flowing is added to the previous total, and the new value is retained.

To reset any of the three fault accumulation totals, edit the field in the left column as you would to configure any other parameter. Then press B to set the new fault accumulation value on the relay itself.

3.3.7 Configuring Sensitrip III Electronic Trip Units and Type SB Systems Breakers

This section describes the parameters on the configuration screens for Sensitrip III electronic trip units and Type SB systems breakers. The configuration screens for these two devices are identical, except that the Power Monitor unit reads the value of the rating plug on the Sensitrip III trip unit and displays it on the screen for the Type SB breaker. The following illustration shows the configuration screen for the Type SB breaker, and it is followed by definitions for the parameters on each device's configuration screen.

3 Configuring Your System and Field Devices

```
Power Monitor          Screen 1.5.1.4.8          9:58 Apr 14, 1992
                      SB Configuration:
                      Circuit: Feeder 6

MT Address           : 1
MT Device Number     : 2
Polling              : On

Breaker type        : System, 2000 amp
Rating plug         : 2000 amp

SB software version  :
MT software version  : 1.07

Key Assignment
Arrows = Cursor
F2 = Confirm Settings
F3 = Erase Device
F4 = Reject Edits
F5 = Edit Field
F6 = Return / Save
C = Clear Alarms
D = Universal Request
F = Find Address
```

Screen 1.5.1.4.8. Configuration Screen for Type SB Systems Breakers

M(ultiplexer) T(ranslator) address

Enter an integer from 1 to 32. Note that, unlike most other devices, you cannot configure the MT address from the Power Monitor unit; instead, you enter a number that matches the address of the Multiplexer Translator used on the system.

M(ultiplexer) T(ranslator) device number

Enter an integer from 1 to 8. This number indicates the Device Number port on the Multiplexer Translator, to which the Sensitrip III trip unit or Systems Breaker is connected for communications.

Polling

Select On or Off. When set to On, the Power Monitor unit polls, or interrogates, the Sensitrip III trip unit or Systems Breaker for information. When set to Off, the Power Monitor unit does not poll the Sensitrip III trip unit or Systems Breaker. The Off setting is useful when taking the device off line for service to prevent "No Response" alarms from occurring.

Breaker type

Read by the Power Monitor unit. For the Sensitrip III, this field indicates the frame size and amp rating of the Type SB breaker on the circuit. For the Type SB breaker, this field reads "System," followed by the amp rating of the breaker.

Rating plug

Read by the Power Monitor unit. This field indicates the rating, in amperes, of the rating plug installed on the trip unit. Although the rating plug is installed on the trip unit, this data field appears only on the configuration screen for the Type SB systems breaker.

SB/SENIII software version

Read by the Power Monitor unit. This field indicates the version of the software operating in the SB breaker or Sensitrip III trip unit.

MT software version

Read by the Power Monitor unit. This field indicates the version of the software operating in the Multiplexer Translator.

3.4 Setting Alarm Limits

Each kind of device configured on your system has an established set of parameters for setting alarms to warn you if problems arise on a particular device. You program any or all of these parameters according to your company's needs. For example, on some devices you may want the system to sound an alarm well in advance of some critical condition. On other devices, you may simply want a message written to the Event Log whenever some minor error condition arises. You can also program the Power Monitor unit to display an alarm message at the bottom of all screens, to let you know at any time that an alarm has been triggered. You decide under what conditions you want to generate alarms and how you want them to register, and then you set each device's parameters accordingly.

Although the alarm parameters usually differ, at least slightly, from one kind of device to the next, the procedure for setting the values for alarm parameters is generally the same. On all devices except the 4700 power meter and the Static Trip III CP trip unit, you set the high and low limits for the parameter, the duration that the alarm condition must persist before an alarm event occurs, and whether to write a message to the Event Log and to sound an alarm at the Power Monitor unit.

Whenever you want to set or change the alarm parameters for any device, move to the Circuit Configuration Menu and follow these steps:

1. Use the Arrow keys to position the cursor on the device for which you want to set the alarm parameters and press F1. The Alarm Limits screen for that device appears.
2. Move the cursor to the field in which you want to enter or change a value. Press F5 to edit the field, or press F3 to clear the value in the field on which the cursor is positioned.
3. If you are editing a field, type in the appropriate information or use the Arrow keys to toggle between the available selections. If you are required to select rather than type an entry, this message appears at the bottom of the screen: "Select with Arrow keys and ENTER."
4. When you have finished editing the Alarm Parameters screen, press F6 to save any changes and return to the Circuit Configuration Menu where you may select another device to configure.

3 Configuring Your System and Field Devices

The remainder of this section describes the alarm limits for each of the devices supported by the Power Monitor unit (except for the 4300 power meter, which does not have alarm limits). The descriptions are fairly brief, so you need to have on hand the operator's manual for each device to provide detailed information about its alarm limits.

3.4.1 Alarm Limits for 3600 Power Meters

This section presents the Alarm Limits screen for the 3600 power meter. Following an illustration of the screen is a brief description of the range of each value for each alarm parameter.

Parameter	Low	High	Delay	Log Only	Sound and Log
Volt L-L	460	500		N	Y
Amp					
KVA					
KW					
KWD		1500		Y	N
KVAR					
PF	80			N	Y
Frequency	57.0	63.0	5	N	Y
Volt % unbalance				N	Y
Amp % unbalance					

Key Assignment
 Arrows = Cursor
 F3 = Clear Field
 F4 = Reject Edits
 F5 = Edit Field
 F6 = Return / Save
 C = Clear Alarms

Screen 1.5.1.1.1. Alarm Limits Screen for 3600 Power Meters

Volt L-L/L-N

Voltages measured by the power meter. You can set the Low and High limits from 0 to 32767 volts. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Amp

Phase amps measured by the power meter. You can set the Low and High limits from 0 to 32767 amps. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

KVA

Calculated by the power meter. You can set the Low and High limits from 0 to 32767 KVA. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

KW

Calculated by the power meter. You can set the Low and High limits from 0 to 32767 KW. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

KWD

Measured by the power meter. You can set the Low and High limits from 0 to 32767 KW. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

KVAR

Calculated by the power meter. You can set the Low and High limits from 0 to 32767 kilovars. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

PF

Measured by the power meter. You can set the Low and High limits from 0 to 100. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Frequency

Measured by the power meter. You can set the Low and High limits from 0 to 999.9 Hz. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Volt % unbalance

Calculated by the power meter. You can set the Low and High limits from 0 to 32767 percent. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Amp % unbalance

Calculated by the power meter. You can set the Low and High limits from 0 to 100 percent. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

3 Configuring Your System and Field Devices

3.4.2 Alarm Limits for 4700 Power Meters

The Power Monitor unit lets you set alarm limits for each of the setpoints on the 4700 power meter. The Alarm Limits screen for the 4700 differs slightly from that of other devices, for which you set high and low limits for each parameter. On the 4700, you instead set "Pickup" and "Release" values and a "Delay" period for each of these. These values are described more fully below.

Note: In some cases, the Power Monitor unit allows you to set limits that are beyond your meter's capacity, so be sure to consult the meter's operator's guide before you define and set the limits.

The following illustration shows the Alarm Limits screen for the 4700 power meter.

Power Monitor		Screen 1.5.1.1.5		9:52 Apr 14, 1992			
Alarm Limits for Circuit: Feeder 3 4700							
Parameter	Pickup	Delay	Release	Delay	Log Only & Log	Sound & Log	Relay output
Overvoltage	100	0	90	0	N	Y	1
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Over KW	100	0	90	0	N	Y	N
Over I4	300	0	200	0	N	Y	N
Over KVAR	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N
Not Used	0	0	0	0	N	N	N

Key Assignment

- Arrows = Cursor
- F1= Config To Device
- F2= Confirm Settings
- F3= Clear Row
- F4= Reject Edits
- F5= Edit Field
- F6= Return / Save
- A = Alternate Data
- C = Clear Alarms
- E = Config From Device

Screen 1.5.1.1.5. Alarm Limits Screen for 4700 Power Meters

Here are the 4700 meter's 19 setpoints for which you can set alarm parameters:

- Overvoltage
- Undervoltage
- Volt Unbalance
- Overcurrent
- Current Unbal.
- Over KVA
- Over KW
- Over KW Reverse
- Over KVAR
- Over KW Demand
- Over Amp Demand
- Over Frequency
- Under Frequency
- Over Aux. Volt
- Under Aux. Volt
- Phase Reversal
- Under PF Lag
- Under PF Lead
- Over I4
- (Not Used)

Note: Because of the large number of alarm parameters, the values for both the Power Monitor unit and the 4700 meter cannot fit on one screen as with most other device screens; however, the values for both are available. Press A (Alternate Data function) to toggle between Power Monitor values and 4700 meter values for alarm parameters.

Notice that all but two of the alarm parameters for the 4700 power meter are either an "Over" value or "Under" value alarm.

For over-value parameters, an alarm goes active when that measured quantity exceeds the value programmed for the alarm limit. For under-value parameters, an alarm goes active when that measured quantity falls below the value programmed for the alarm limit.

For each alarm parameter, you can set the values described next.

Pickup

Enter an integer from 1 to 999,999. The pickup value is the point at which an alarm goes active. Depending upon the particular alarm parameter, the meter must either exceed or fall below the pickup value to trigger the alarm.

Release

Enter an integer from 1 to 999,999. The release value is the point at which the system returns to normal and the alarm clears. Depending upon the particular alarm parameter, the meter must either exceed or fall below the release value to turn off the alarm.

Delay

Enter an integer from 1 to 9999. Set the delay for the number of seconds that a pickup or release must persist for an alarm to go active or to clear.

Log Only

Select Y(es) or N(o) to indicate whether the Power Monitor unit *only* writes an alarm message to the Event Log. (Note that you cannot select Y for this field *and* for the Sound & Log field.)

Sound & Log

Select Y(es) or N(o) to indicate whether the Power Monitor unit writes an alarm message to the Event Log *and* sounds an alarm. (Note that you cannot select Y for this field and for the Log Only field.)

Relay output

Select 1, 2, or 3 to indicate which relay you want the meter to operate as a result of the alarm event. Or select N(o) to indicate that you do not want the meter to operate a relay as a result of the alarm event.

The two exceptions to setting alarm limits are the Phase Reversal parameter and the Not Used parameter. For Phase Reversal, you cannot define the values just described; instead, you simply select Yes or No to enable or disable this parameter. And the Not Used parameter simply indicates that you have chosen not to set alarm limits for one or more of the meter's setpoints.

The operator's manual for the 4700 power meter provides any detailed information you might need about these parameters in a section describing the meter's setpoints.

3 Configuring Your System and Field Devices

3.4.3 Alarm Limits for Static Trip IIIC Trip Units

This section presents the Alarm Limits screen for the Static Trip IIIC trip unit. Following an illustration of the screen is a brief description of each alarm parameter, including the acceptable range for each value for the parameter.

Power Monitor		Screen 1.5.1.1.2		9:51 Apr 14, 1992	
Alarm Limits for Circuit: Sub #1 ST III/C					
Parameter	Low	High	Delay	Log Only	Sound and Log
Amps		800		N	Y
Ground amps		10		Y	N
Amp % capacity				N	Y
Pickup				N	Y
Breaker status				N	Y
Amp % unbalance				N	Y

Key Assignment
 Arrows = Cursor
 F3 = Clear Field
 F4 = Reject Edits
 F5 = Edit Field
 F6 = Return / Save
 C = Clear Alarms

Screen 1.5.1.1.2. Alarm Limits Screen for Static Trip IIIC Trip Units

Amps

The phase amps as measured by the trip unit. You can set High and Low limits from 0 to 999,999 amps. An event occurs when either of these limits is exceeded on any phase for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Ground amps

The ground amps as measured by the trip unit. You can set High and Low limits from 0 to 999999 amps. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Amp % capacity

Defined as the maximum current on a phase divided by the current sensor rating. You can set High and Low limits from 0 to 32767 percent. An event occurs when either of these limits is exceeded on any phase for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Pickup

An alarm is generated when a longtime pickup, short-time/ground pickup, or current unbalance goes active or inactive. You *cannot* set Low, High, and Delay values for this alarm. Choose whether to Log Only or Sound and Log the alarm condition. (The default is Sound and Log.)

Breaker status

An alarm is generated when the status of the breaker changes from Open to Close or Close to Open. You *cannot* set Low, High, and Delay values for this alarm. Choose whether to Log Only or Sound and Log the alarm condition. (The default is Sound and Log.)

Amp % unbalance

Calculated by the trip unit. You can set the Low and High limits from 0 to 32767 percent. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

3.4.4 Alarm Limits for Static Trip IIICP Trip Units

This section presents the Alarm Limits screen for the Static Trip IIICP trip unit. This screen differs slightly from the same screen for most other devices that let you set high and low limits for alarm parameters. On the Static Trip IIICP, you set a "Pickup" value and a "Delay" period for each parameter. These values are described more fully below, following an illustration of the Alarm Limits screen:

Power Monitor		Screen 1.5.1.1.6		9:52 Apr 14, 1992	
Alarm Limits for Circuit: Feeder 4 ST IIICNPX					
Parameter	Pickup	Pickup	Delay	Log only & log	Sound Relay
Overcurrent	1 A		1 s	N	Y N
Over Ground Current	1 A		1 s	N	Y N
Over Neutral Current	1 A		1 s	N	Y N
Current Unbalance	5 %		1 s	N	Y N
Undervoltage	60 V		1 s	N	Y N
Voltage Unbalance	5 %		1 s	N	Y N
Overvoltage	60 V		1 s	N	Y N
Over KW		KW		s	
Over Reverse KW		KW		s	
Over KW Demand		KW		s	
Over KVAR		KVAR		s	
Over KVA		KVA		s	
Over Frequency		45.0 Hz	1 s	N	Y N
Under Frequency		45.0 Hz	1 s	N	Y N
Power Factor	100 Lag	100 Lag	1 s	N	Y Y
Pickup				N	Y
Breaker Status				N	Y

Key Assignment
 Arrows = Cursor
 F1 = Config To Dev.
 F2 = Confirm Setting
 F3 = Clear Row
 F4 = Reject Edits
 F5 = Edit Field
 F6 = Return / Save
 A = Alternate Data
 C = Clear Alarms
 E = Config From Dev

Screen 1.5.1.1.6. Alarm Limits Screen for Static Trip IIICP Trip Units

Here are the 17 alarm parameters that you can set for the Static Trip IIICP:

- Overcurrent
- Over Ground Current
- Over Neutral Current
- Current Unbalance
- Undervoltage
- Voltage Unbalance
- Overvoltage
- Over KW
- Over Reverse KW
- Over KW Demand
- Over KVAR
- Over KVA
- Over Frequency
- Under Frequency
- Power Factor
- Pickup
- Breaker Status

3 Configuring Your System and Field Devices

Note: Because of the large number of alarm parameters, the values for the Power Monitor unit and for the Static Trip IIICP trip unit cannot fit on one screen, as with most other device screens; however, the values for both are available. Press A (Alternate Data function) to toggle between Power Monitor values and trip unit values for alarm parameters.

Notice that most of the alarm parameters for the trip unit are either an "Over" value or "Under" value. For over-value parameters, an alarm goes active when that measured quantity exceeds the value programmed for the alarm limit. For under-value parameters, an alarm goes active when that measured quantity falls below the value programmed for the alarm limit.

For each alarm parameter, you can set the values described next.

Note: There are some exceptions to the instructions in this section for setting alarm limits on Static Trip IIICP trip units, so before you set alarm limits, be sure to consult the operator's manual *Static Trip III* (manual no. SG-3118-01) for the acceptable ranges of alarm parameters.

Pickup

Enter an integer from 0 to 32767. The pickup value is the point at which an alarm goes active. Depending upon the particular alarm parameter, the meter must either exceed or fall below the pickup value to trigger the alarm.

Delay

Enter an integer from 0 to 32767. Set the delay for the number of seconds that a pickup must persist for an alarm to go active.

Log Only

Select Y(es) or N(o) to indicate whether the Power Monitor unit only writes an alarm message to the Event Log. (Note that you cannot select Y for this field *and* for Sound and Log.)

Sound & Log

Select Y(es) or N(o) to indicate whether the Power Monitor unit writes an alarm message to the Event Log *and* sounds an alarm. (Note that you cannot select Y for this field *and* for Log Only.)

Relay output

Select Y(es) or N(o) to indicate whether you want the trip unit to operate its Auxiliary Relay output as a result of the alarm event.

A few exceptions to setting alarm limits exist for some parameters. For the Pickup and Breaker Status parameters, you cannot set Pickup and Delay values; instead, choose whether to Log Only or to Sound and Log the alarm event. For Over KW, Over KW Demand, and Over KVAR, the pickup value can be negative.

The manual for the Static Trip IIICP provides any detailed information you might need about these parameters, so be sure to refer to it as well if you need to know more about setting alarm limits for trip units.

3.4.5 Alarm Limits for SAMMS Devices

This section presents the Alarm Limits screen for the SAMMS device. Following an illustration of the screen is a brief description of each alarm parameter.

Note: Not all alarms are available on all models of SAMMS device.

Parameter	Low	High	Delay	Log Only	Sound and Log
Motor current	A 150.0	A	5 s	N	Y
Process current	%	%	s		
Winding temp.				Y	N
Motor run-time		25000 Hr		Y	N
Number of starts		1000		Y	N
Overload trips		100			
Phase unbalance				N	Y
Ground fault				N	Y
Loss of load				N	Y
Impending trip				N	Y
Start inhibit				N	Y
Motor status change				N	Y

Key Assignment
 Arrows = Cursor
 F1= Config To Dev.
 F2= Confirm Setting
 F3= Clear Field
 F4= Reject Edits
 F5= Edit Field
 F6= Return / Save
 C = Clear Alarms

Screen 1.5.1.1.3 Alarm Limits Screen for SAMMS Devices

Motor current

Read by the SAMMS device. You can set Low and High limits from 0 to 540 amps. An event occurs when these limits are exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Process current

Calculated by the SAMMS device. You can set the Low and High limits from 0 to 100 percent of the full-load current. An event occurs when these limits are exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Winding temp.

You can set the High limit from 0 to 175 percent to establish the maximum allowable temperature of the motor windings as a percentage of the steady-state, full-load temperature.

3 Configuring Your System and Field Devices

Motor run-time

You can set the number of hours of running time, from 0 to 65535, beyond which an alarm event occurs. Choose whether to Log Only or Sound and Log the alarm condition.

Number of starts

You can set the number of motor starts, from 0 to 65535, beyond which an alarm event occurs. Choose whether to Log Only or Sound and Log the alarm condition.

Overload trips

You can set the number of trips due to an overload, from 0 to 9999, beyond which an alarm event occurs. Choose whether to Log Only or Sound and Log the alarm condition.

Phase unbalance

Choose whether to Log Only or Sound and Log the alarm event when a phase unbalance occurs.

Ground fault

If the SAMMS device provides a warning of or protection against a ground fault, choose whether to Log Only or Sound and Log the alarm condition.

Loss of load

Choose whether to Log Only or Sound and Log the alarm event when a loss of load occurs.

Impending trip

If the SAMMS device provides a warning of an impending trip, choose whether to Log Only or Sound and Log the alarm condition.

Start inhibit

Choose whether to Log Only or Sound and Log the alarm event when a start inhibit occurs.

Motor status change

When the motor changes status from On to Off or from Off to On, choose whether to Log Only or Sound and Log the change of status.

3.4.6 Alarm Limits for SCOR Relays

This section presents the Alarm Limits screen for SCOR relays. Following an illustration of the screen is a brief description of each alarm parameter, including the acceptable range for each value for the parameter.

Power Monitor		Screen 1.5.1.1.4		9:53 Apr 14, 1992	
Alarm Limits for Circuit: Main B SCOR					
Parameter	Low	High	Delay	Log Only	Sound and Log
Amps					
Ground amps		50	5	N	Y
Amp demand		1000		Y	N
Amp % unbalance				N	Y
Long time pickup				N	Y
Breaker status				N	Y

Key Assignment
 Arrows = Cursor
 F3 = Clear Field
 F4 = Reject Edits
 F5 = Edit Field
 F6 = Return / Save
 C = Clear Alarms

Screen 1.5.1.1.4. Alarm Limits Screen for SCOR Protective Relays

Amps

The phase amps as measured by the relay. You can set High and Low limits from 0 to 32767 line amps. An event occurs when either of these limits is exceeded on any phase for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Ground amps

The ground amps as measured by the relay. You can set High and Low limits from 0 to 32767 amps. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Amp demand

Calculated by the relay. You can set the Low and High limits from 0 to 32767. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Amp % unbalance

Calculated by the relay. You can set the Low and High limits from 0 to 32767 percent. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Long time pickup

An alarm generated when a long time pickup goes active or inactive. You *cannot* set Low, High, and Seconds values for this alarm. Choose whether to Log Only or Sound and Log the alarm condition.

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Breaker status

An alarm generated when the status of the breaker changes from Open to Closed or from Closed to Open. You *cannot* set Low, High, and Seconds values for this alarm. Choose whether to Log Only or Sound and Log the alarm condition.

3.4.7 Alarm Limits for Sensitrip III Electronic Trip Units and Type SB Systems Breakers

This section presents the Alarm Limits screen for Sensitrip III electronic trip units and Type SB systems breakers. The screen is the same for both of these devices. Following an illustration of the Alarm Limits screen for the Type SB systems breaker is a brief description of each alarm parameter, including the acceptable ranges for each parameter.

Parameter	Low	High	Delay	Log Only	Sound and Log
Amps	A	1500 A	5 s	N	Y
Ground amps	A	50 A	10 s	N	Y
Long time pickup				N	Y
Load monitor				N	Y

Key Assignment
Arrows = Cursor
F3 = Clear Field
F4 = Reject Edits
F5 = Edit Field
F6 = Return / Save
C = Clear Alarms

Screen 1.5.1.1.8. Alarm Limits Screen for Type SB Systems Breakers

Amps

The phase amps as measured by the trip unit. You can set High and Low limits from 0 to 32767 amps. An event occurs when either of these limits is exceeded on any phase for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Ground amps

The ground amps as measured by the trip unit. You can set High and Low limits from 0 to 32767 amps. An event occurs when either of these limits is exceeded for the specified Delay (0 to 32767 seconds). Choose whether to Log Only or Sound and Log the alarm condition.

Long time pickup

An alarm is generated when a longtime pickup goes active or inactive. You *cannot* set Low, High, and Delay values for this alarm. Choose whether to Log Only or Sound and Log the alarm condition.

Load monitor

An alarm is generated when the unit's load monitor alarm goes active. You *cannot* set Low, High, and Delay values for this alarm. Choose whether to Log Only or Sound and Log the alarm condition.

3.5 Setting Protective Functions

The protective devices configured on your system, devices such as trip units and relays, have a number of protective functions that you can set through the Power Monitor unit. These functions are somewhat similar to the device's alarm limits, but instead of producing an alarm, the protective functions trip a breaker whenever the device exceeds the programmed limits.

Although the protective functions differ somewhat from one kind of device to the next, the procedure for setting them is generally the same. Whenever you want to set or change the protective functions for any device, move to the Circuit Configuration Menu and follow these steps:

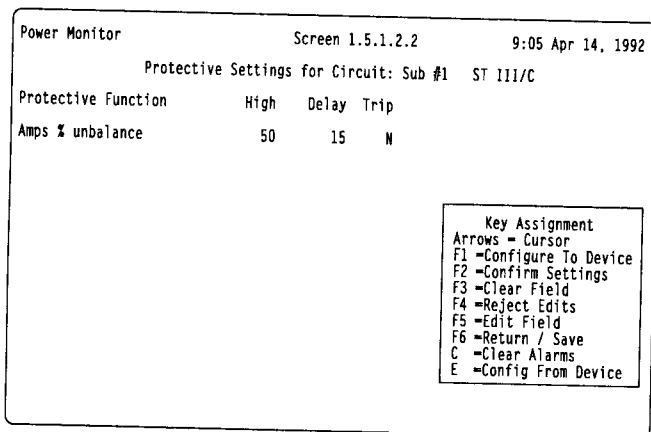
1. Use the Arrow keys to position the cursor on the device for which you want to set the protective functions and press F2. The Protective Settings screen for that device appears.
2. Move the cursor to the field in which you want to enter or change a value. Press F5 to edit the field, or press F3 to clear the field on which the cursor is positioned. (Enter your Password if prompted to do so.)
3. If you press F5 to edit a field, type in the new information or use the Arrow keys to toggle between the available selections. Press ENTER to complete the change.
4. When you have finished making changes, press F1 to configure the device according to your changes (some devices do not offer this option), and if you want to, press F2 to confirm the changes you have made at the device.
5. Press F6 to save all changes and return to the Circuit Configuration Menu.

The protective functions for each kind of device that offers them are described in the subsections that follow.

3 Configuring Your System and Field Devices

3.5.1 Protective Settings for Static Trip IIIC Trip Units

This section presents the Protective Settings screen for the Static Trip IIIC trip unit. Following an illustration of the screen is a brief description of the protective function.



Screen 1.5.1.2.2. Protective Settings Screen for Static Trip IIIC Trip Units

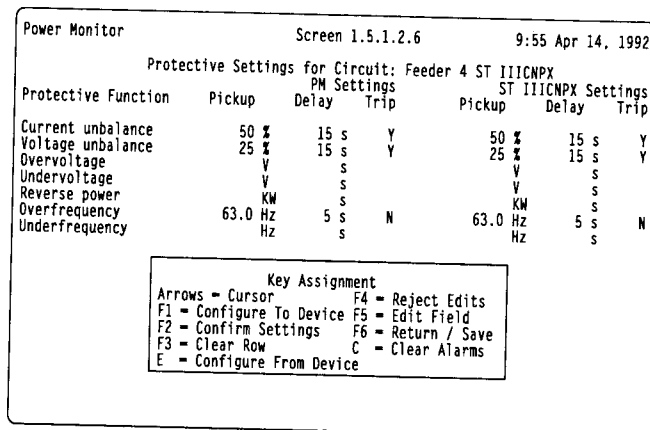
Amps % unbalance

You can enter a value for the High limit from 0 to 100 percent, although the acceptable range for the Static Trip IIIC is 15 percent to 50 percent. The trip unit trips a breaker when this value is exceeded for the specified Delay (0 to 32767 seconds). Choose Y(es) to enable or N(o) to disable the Trip function.

3.5.2 Protective Settings for Static Trip IIICPX Trip Units

This section presents the Protective Settings screen for those Static Trip IIICPX trip units that have protective functions. Only models IIICPX and IIICNPX offer protective functions. (The "X" in the model number indicates that the unit has protective functions.) These Static Trip IIICPX trip units have seven protective functions, which you can program from the Power Monitor unit.

Following an illustration of the screen is a brief description of each protective function:



Screen 1.5.1.2.6. Protective Settings Screen for Static Trip IIIC(N)PX Trip Units

Note: There are some exceptions to the instructions in this section for setting protective functions on Static Trip III trip units. For each protective function, the Power Monitor unit allows you to set values beyond the capability of the trip unit itself, so before you set protective functions, be sure to consult the operator's manual *Static Trip III* (manual no. SG-3118-01) for the acceptable ranges of these functions.

Current unbalance

You can set the Pickup value from 0 to 100 percent. The trip unit trips a breaker when this value is exceeded for the specified Delay (0 to 32767 seconds). Choose Y(es) to enable or N(o) to disable the Trip function.

Voltage unbalance

You can set the Pickup value from 0 to 100 percent. The trip unit trips a breaker when this value is exceeded for the specified Delay (0 to 32767 seconds). Choose Y(es) to enable or N(o) to disable the Trip function.

Overvoltage

You can set the Pickup value from 0 to 32767 volts. The trip unit trips a breaker when the voltage level exceeds this value for the specified Delay (0 to 32767 seconds). Choose Y(es) to enable or N(o) to disable the Trip function.

Undervoltage

You can set the Pickup value from 0 to 32767 volts. The trip unit trips a breaker when the voltage level falls below this value for the specified Delay (0 to 32767 seconds). Choose Y(es) to enable or N(o) to disable the Trip function.

3 Configuring Your System and Field Devices

Reverse power

You can set the Pickup value from 0 to 32767 KW. The trip unit trips a breaker when the reverse power exceeds this value for the specified Delay (0 to 32767 seconds). Choose Y(es) to enable or N(o) to disable the Trip function.

Overfrequency

You can set the Pickup value from 0 to 3276.7 Hz. The trip unit trips a breaker when the frequency of the current exceeds this value for the specified Delay (0 to 32767 seconds). Choose Y(es) to enable or N(o) to disable the Trip function.

Underfrequency

You can set the Pickup value from 0 to 3276.7 Hz. The trip unit trips a breaker when the frequency of the current falls below this value for the specified Delay (0 to 32767 seconds). Choose Y(es) to enable or N(o) to disable the Trip function.

3.5.3 Protective Settings on SAMMS Devices

This section discusses the Protective Settings screen for SAMMS devices. Following an illustration of the screen is a brief description of each protective function, including the acceptable range for each parameter.

Power Monitor		Screen 1.5.1.2.3		9:06 Apr 14, 1992	
Protective Settings for Circuit: MCC #1 SAMMS					
Protective Function	PM Settings Value	PM Settings Trip	SAMMS Settings Pickup	SAMMS Settings Trip	
Full load current #1 (4.8-24.0)	A		9.0 A		
Full load current #2 (OFF)	A		0.0 A		
Service factor			1.15		
Overload trip class (2...23)	s		10 s		
Phase unbalance					Y
Ground fault protection					N
Jam protection					Y
Loss of load protection					Y

Key Assignment	
Arrows = Cursor	F4 = Reject Edits
F1 = Configure To Device	F5 = Edit Field
F2 = Confirm Settings	F6 = Return / Save
F3 = Clear Field	C = Clear Alarms
E = Configure From Device	

Screen 1.5.1.2.3. Protective Settings Screen for SAMMS Devices

Full load current #1

You can set this value from 0.0 to 540.0 amps to indicate the full-load current for overload relay #1. The range of acceptable values is based upon the size of the starter. (Refer to your SAMMS Installation and Operation Manual for details.)

Full load current #2

You can set this value from 0.0 to 540.0 amps to indicate the full-load current for overload relay #2. The range of acceptable values is based upon the size of the starter. (Refer to your SAMMS Installation and Operation Manual for details.)

Service factor

Select 1.0 or 1.15 to match the motor service factor of the motor.

Overload trip class

Enter a value of 2 to 23 seconds to set the length of time an overload relay takes to trip for a starting current of 600% of the full-load current. A smaller number of classes is based upon which SAMMS version you have. (Refer to your SAMMS Installation and Operation Manual for details.)

Phase unbalance

Select Y(es) to enable the SAMMS device to stop the motor when a phase unbalance occurs. Or select N(o) to disable this protection feature.

Ground fault protection

If the SAMMS device provides a warning of or protection against a ground fault, select Y(es) to enable the unit to stop the motor. Or select N(o) to allow the unit only to issue a warning of the ground fault.

Jam protection

Select Y(es) to enable the SAMMS device to stop the motor when a jam occurs. Or select N(o) to disable this protection feature.

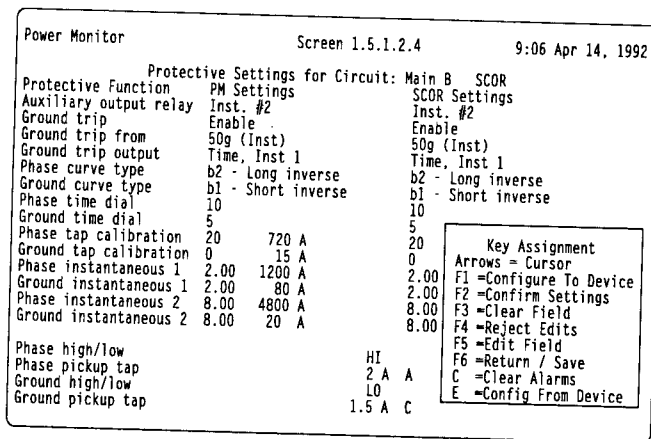
Loss of load protection

Select Y(es) to enable the SAMMS device to stop the motor when a loss of load occurs. Or select N(o) to allow the unit only to issue a warning of the loss of load.

3.5.4 Protective Settings for SCOR Relays

This section presents the Protective Settings screen for SCOR relays. Following an illustration of the screen is a brief description of each protective function, including the acceptable range for each function.

3 Configuring Your System and Field Devices



Screen 1.5.1.2.4. Protective Settings Screen for SCOR Protective Relays

Auxiliary output relay

This field designates the configuration of the third output on the SCOR relay, for which there are four options for selection:

1. "No relay" if the SCOR does not have a third output
2. "Breaker control" if you use the third output to close a breaker
3. "Inst. #2" if you use the third output for Instantaneous #2 protection
4. "Ground trip" if you use the third output to trip a separate lockout relay for ground faults

Refer to the SCOR operator's manual (manual no. SG-9228-01) if you need more information about the auxiliary output relay.

Ground trip

Select whether to Enable or Disable the ground trip protective function. You must select Enable for the "Ground trip from" and "Ground trip output" functions to operate.

Ground trip from

Select 50g (Inst), 51g (Time), or both to indicate which element(s) the ground trip operates from. (You must select Enable in the "Ground trip" field above for this function to operate.)

Ground trip output

Select Time Inst 1 or Aux Output Relay to indicate which output is operated by the ground trip event. (You must select Enable in the "Ground trip" field above for this function to operate.)

Phase curve type

Select from "b1 - b8" and "c1 - c8" to indicate your choice of the type of phase curve according to its time overcurrent characteristic. Refer to the SCOR operator's manual (manual no. SG-9228-01) for more information about the phase curve type.

Ground curve type

Select from "b1 - b8" and "c1 - c8" to indicate your choice of the type of ground curve according to its time overcurrent characteristic. Refer to the SCOR operator's manual (manual no. SG-9228-01) for more information about the ground curve type.

Phase time dial

You can set this value from 0 to 99 to designate one of the 100 characteristic curves of the type you specified when selecting the Phase Curve Type.

Ground time dial

Enter a value from 0 to 99 to designate one of the 100 characteristic curves of the type you specified when selecting the Ground Curve Type.

Phase tap calibration

Enter a value from 0 to 99 to set the pickup value for the relay as a percentage of the distance between any two adjacent phase tap settings on the front of the relay. For example, entering "25" in this field raises the pickup level to 25% of the distance from the tap set to the next higher tap.

Ground tap calibration

Enter a value from 0 to 99 to calibrate the distance between two adjacent tap settings as a percentage of the whole distance. For example, entering "25" in this field raises the pickup level to 25% of the distance from the tap set to the next higher tap.

Phase instantaneous 1/2

Enter a value from .75 to 20.00 to specify a number that, when multiplied by the tap setting, determines a phase-amp level that generates an instantaneous trip.

Ground instantaneous 1/2

You can set this value from .75 to 20.00 to specify a number that, when multiplied by the tap setting, determines a ground-amp level that generates an instantaneous trip.

Phase high/low

Read by the Power Monitor unit. This field indicates whether the values for the phase tap settings are defined by the High or Low range of values shown in the table on the front panel of the relay.

3 Configuring Your System and Field Devices

Phase pickup tap

Read by the Power Monitor unit. This field indicates the present setting of the phase tap selector on the front panel of the relay.

Ground high/low

Read by the Power Monitor unit. This field indicates whether the values for the phase tap settings are defined by the High or Low range of values shown in the table on the front panel of the relay.

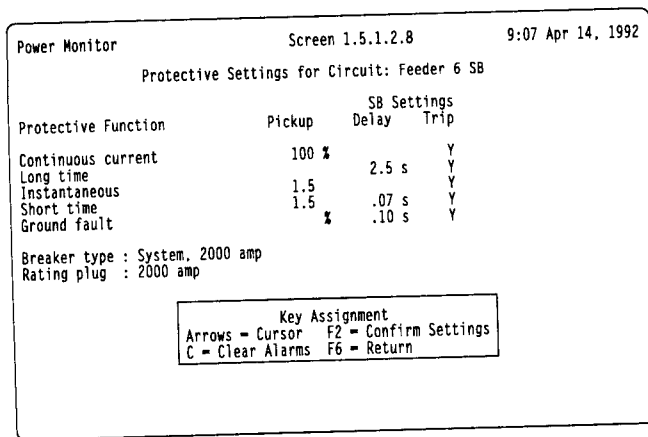
Ground pickup tap

Read by the Power Monitor unit. This field indicates the present setting of the ground tap selector on the front panel of the relay.

3.5.5 Protective Settings on Sensitrip III Trip Units and Type SB Systems Breakers

This section presents the Protective Settings screens for the Sensitrip III trip unit and Type SB systems breaker. Unlike other devices supported by the Power Monitor unit, the protective functions for these two devices cannot be configured from the Power Monitor unit. Instead, the Power Monitor unit reads the settings from the trip unit or systems breaker and displays them on the Protective Settings screens. If you need to change the protective settings, you must make the changes on the device itself.

The Protective Settings screen for these two devices are identical, except that the Power Monitor unit reads the value of the rating plug on the Sensitrip III trip unit and displays it on the screen for the Type SB breaker. The following illustration shows the Protective Settings screen for the Type SB breaker.



Screen 1.5.1.2.8. Protective Settings Screen for Type SB Systems Breakers

As shown in the illustration, Sensitrip III trip units and Type SB systems breakers offer the following protective functions:

- Continuous current
- Long time
- Instantaneous
- Short time
- Ground fault

These functions listed on the Protective Settings screen correspond to switches on the front of the Sensitrip trip unit. Notice in the illustration that for each of these functions the Power Monitor unit reads the Pickup and Delay values, and it tells you the Trip status of each.

In addition to these functions, the Protective Settings screen for both devices shows you the type of breaker on the circuit, and the screen for the Type SB Systems Breaker shows the amp rating of the rating plug installed on the trip unit.

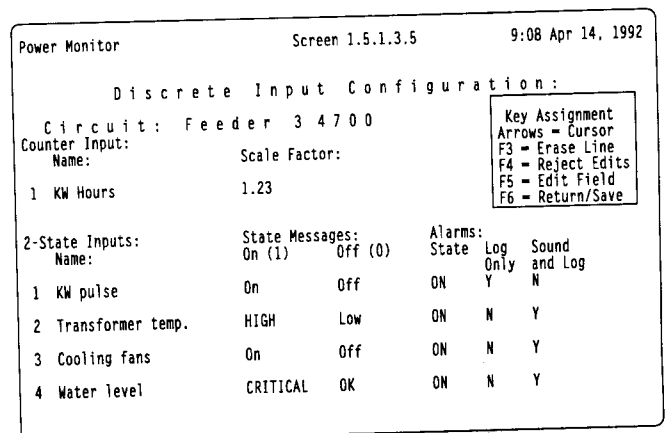
For specific definitions of the protective functions listed in this section, refer to the operator's manuals for these devices.

3.6 Adding and Modifying Discrete Inputs

As your needs require, you can connect discrete inputs to 3600 and 4700 power meters and to SAMMS devices. For any of these devices, you can attach as many as four 2-state inputs. For power meters, one of these can be a counter input.

To add or modify discrete inputs for any of these devices, move to the Circuit Configuration Menu (Screen 1.5.1) on the Power Monitor unit and follow the steps below:

1. Use the Arrow keys to position the cursor on the device for which you want to add or modify discrete inputs and press F3. The Discrete Input Configuration screen appears:



Screen 1.5.1.3.5 Discrete Input Configuration Screen for 4700 Power Meters

3 Configuring Your System and Field Devices

2. Move the cursor to the field in which you want to add or change an entry. Press F5 to edit the field, or press F3 to erase the entire line on which the cursor is positioned.
3. If you want to edit a field, type in the appropriate information or use the Arrow keys to toggle between the available selections. Press F6 to save your entry.
4. When you finish entering all the information for discrete inputs for the selected device, press F6 to save any changes and return to the Circuit Configuration Menu. (Or you can choose to reject all the edits you have just made by pressing F4.)
5. If you want to add or modify discrete inputs for other devices, begin again with step 1 above. Otherwise, use the function keys to select another task from the Circuit Configuration Menu.

The next two sections describe the individual fields of the Discrete Input Configuration screen for each device. To display information about all discrete inputs on your system, refer to section 2.7 above.

3.6.1 Counter Input

For 3600 and 4700 power meters, you can configure one of the four discrete inputs as a counter that records such things as the number of times a breaker trips or the number of pulses sent by a watt-hour meter. If you use a counter input, you must define a scale factor for the value supplied by the counter.

You can only configure one counter for each power meter, and the counter is always associated with discrete input 1.

Name

Enter up to 20 alphanumeric characters for the name of the counter input. It helps to include the unit of measure in the name to aid the operator when he reads the information.

Scale Factor

Enter a number from 0.0001 to 99999.9999. This value is a multiplier for the counter input.

3.6.2 Two-State (Discrete) Inputs

You can configure as many as four discrete inputs for 3600 and 4700 power meters and for SAMMS devices. These inputs are 2-state inputs; that is, they can be set to either an On (Active) or Off (Inactive) position. To indicate what each state means for a particular input, you can also assign a State Message describing the status. You can set alarms for any or all inputs, including an alarm for a specific change of state, and you can choose whether to Log Only or to Sound and Log alarm events.

Name

Enter up to 20 characters for the name of the discrete input.

State Messages

Enter up to 10 characters for both "On" and "Off" state messages. Use this field as a label for each state, to indicate what the particular state means for your system.

Alarm State

For each discrete input, you can set an alarm to occur during the On state, during the Off state, or at every instance of a change of state (whether from On to Off or from Off to On).

You can set each alarm to *Log Only* (Y or N) or to *Sound and Log* (Y or N). Notice that, if you set either field to "Y," the other field automatically sets to "N."

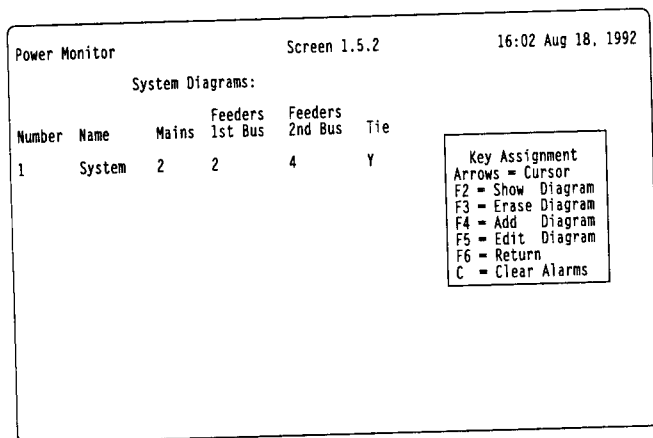
3.7 Defining System Diagrams

System diagrams are one-line delineations of your electrical system with symbols that represent the various components. You can define up to 16 system diagrams. Single-main breaker diagrams may have up to 16 feeder circuits plus one optional tie circuit. Double-main diagrams may have up to 20 feeder circuits (with each of the two mains having up to 10 feeder circuits) plus one optional tie circuit.

3 Configuring Your System and Field Devices

When you want to define or change system diagrams, begin by following these steps:

1. From the Main Menu, select "Display Configuration." The Configuration Menu appears.
2. From the Configuration Menu, select System Diagrams. The System Diagrams screen appears:



Screen 1.5.2. System Diagrams Screen

The list on the System Diagrams screen offers basic information about each diagram, including a sequential number, name, the number of mains, the number of feeder circuits on the first and second buses, and whether or not a tie circuit is present.

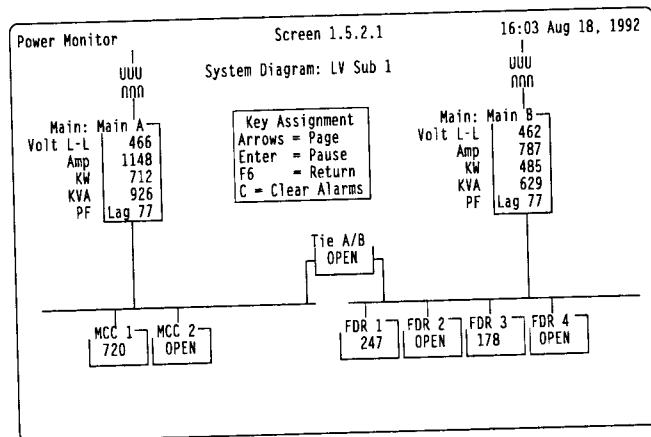
As indicated in the Key Assignment box, you can

1. show a diagram (F2)
2. erase a diagram (F3)
3. add a new diagram (F4)
4. edit an existing diagram (F5)

To perform any of these functions, move the cursor to the line that designates the diagram you want, and press the appropriate Function key. The remainder of this section describes the various tasks associated with defining system diagrams from the Systems Diagrams screen.

3.7.1 Showing a Diagram

To show a diagram listed on the System Diagrams screen, move the cursor to the appropriate line and press F2. The System Diagram: [Name] screen appears:



Screen 1.5.2.1. System Diagram [Name] Screen

Note: When you view a diagram selected from the System Diagram screen, the data on the diagram does not update at the programmed rate, as it does when you view diagrams by selecting "Display System Diagrams" from the Main Menu.

3.7.2 Erasing a Diagram from the System

To delete a diagram from the system, follow these steps:

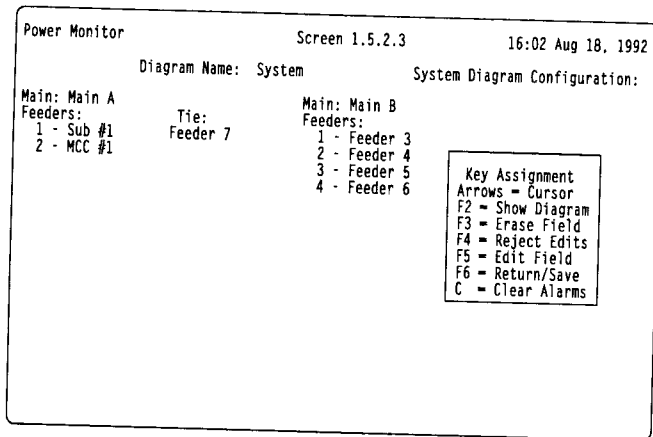
1. Move the cursor to the appropriate line on screen 1.5.2 and press F3. The selected diagram appears.
2. Press F1 to confirm the deletion, or press F6 to abort the deletion and return to the System Diagrams screen.

3.7.3 Editing an Existing Diagram or Adding a Diagram to the System

You can edit an existing diagram or add a new diagram to the system. Adding or editing a diagram requires you to provide a name for the diagram and to identify the main and feeder circuit(s) and the tie circuit. This information is summarized for each diagram on the System Diagrams screen, which lists all diagrams defined for your system.

3 Configuring Your System and Field Devices

To edit an existing diagram, select the appropriate line from the list on screen 1.5.2 and press F5. To create a new diagram, just press F4. In either case, the System Diagram Configuration screen appears.



Screen 1.5.2.3. System Diagram Configuration Screen

If you are editing an existing diagram, the fields on the screen contain the present information for that diagram. If you are adding a new diagram to the system, the fields on the screen are blank, and you fill in the information that defines the diagram.

The key assignments for this screen are similar to those on the System Diagrams screen (1.5.2). You can

1. show the present diagram (F2)
2. erase the information in a selected field (F3)
3. reject any changes you have just made to the present diagram (F4)
4. edit the information in a selected field (F5)

To show the present diagram, press F2. Note that the data on the diagram does *not* update at the programmed rate, as it does when you view diagrams by selecting Display System Diagrams from the Main Menu.

To erase a field, move the cursor to the desired field and press F3. If you erase a feeder circuit from a list, any entries in the list below the erased entry move up to fill the vacant position, and the feeder circuits in the diagram also move over to fill the vacant position. If you erase a main circuit, all of its associated feeder circuits are erased as well.

To edit a field, move the cursor to the desired field and press F5. If you are editing the Diagram Name, use the keypad (or an external keyboard attached through the front of the Power Monitor unit) to type in a new name. If you are editing the Main, Feeder, or Tie fields, you will be presented with a list of all the circuits configured for your system. Select the appropriate circuit from the list.


Note: If you have only *one* main circuit on a diagram, you can configure as many as 16 feeder circuits on that main circuit. If you have *two* main circuits, you can configure no more than 10 feeder circuits on each bus.


4 Manual Control of Field Devices

The Power Monitor unit allows you to control the outputs of the following types of device from the Power Monitor unit, if the individual device allows for manual control:

- 4700 power meters (if the meter has relay outputs)
- SAMMS devices (if the unit's control circuit allows for communications Open and Close commands)
- SCOR protective relays (if the SCOR has an Instantaneous #2/Close output and is wired for manual control)
- Static Trip IIIC/CP static trip units

You enable the manual control option for your system on the Global Settings described above. When this system option is enabled, it then appears on the Main Menu, and you can then enable manual control for individual devices.




DANGER

Hazardous Voltage.
Will cause severe injury or death.

Before enabling manual control, consider that operating a device from a remote location may endanger personnel working on or around that device.

To enable manual control for your system and then for a particular device (if the device allows for manual control), follow these steps:

1. On the Global Settings screen (screen 1.5.3), select "Enabled" for the Manual Control Menu option. (If you need help in changing Global Settings, refer to section 3.1 above.)
2. Return to the Main Menu and select "Manual Control." The Manual Control: Password Required screen appears.
3. Enter your password, and the Manual Control Menu appears:

Power Monitor Screen 1.7 9:20 Apr 14, 1992

Manual Control Menu:

Name	Devices Available
Main A	3600-S1
Sub #1	[STIIIC]
MCC #1	[SAMMS]
Main B	[SCOR]
Feeder 3	[4700]
Feeder 4	[STIIICP]
Feeder 5	SENIIC
Feeder 6	S8
Feeder 7	4300

Key Assignment

Arrows = Cursor
 F1 = [Enable]/Disable
 F5 = Select Device
 F6 = Return / Save
 C = Clear Alarms

Screen 1.7. Manual Control Menu

4. Move the cursor to any device for which you want to enable manual control, and press F1. Bold, flashing brackets ([]) appear around the device name.
5. Move the cursor to any device with manual control enabled, and press F5 to select that device. The Manual Control screen for that device appears.
6. Choose the appropriate output and Function key for the task(s) you want to perform.
7. When you have completed the operation, press F6 to save the changes and return to the Manual Control Menu.

Note: In addition to the preceding steps, Static Trip IIICP trip units require additional steps for operation by manual control. Refer to section 4.3 below for more information about manual control for these trip units.

The remainder of this section describes the specific manual control features for each device.

4.1 Manual Control for 4700 Power Meters

After you enable the manual control option for a 4700 power meter, you can then select the device from the Manual Control Menu, and the following screen appears:

Power Monitor Screen 1.7.5 9:19 Apr 14, 1992

Manual Control for Circuit: Feeder 3 4700

Relay	Control Mode	Status
1	Setpoint	Operated
2	Manual	Released
3	Manual	Released

Key Assignment

Arrows = Cursor
 F1 = Manual operate
 F2 = Manual release
 F3 = Confirm
 F5 = Setpoint control
 F6 = Return / Save
 C = Clear Alarms

Screen 1.7.5. Manual Control Screen for 4700 Power Meters

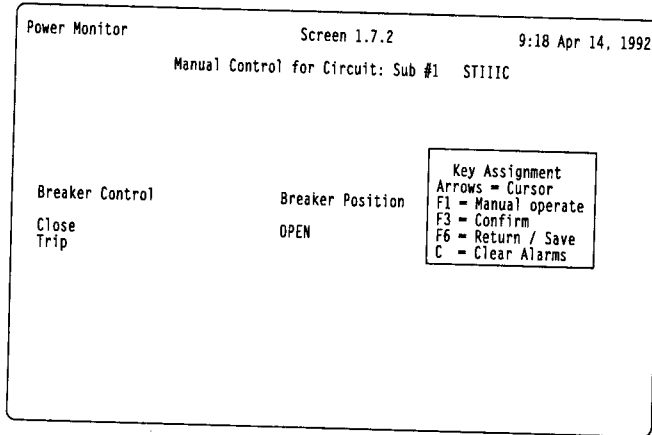
The Manual Control screen for the 4700 power meter allows you to control the meter's three relay outputs. For each output, you can operate the relay, release the relay, or return the relay to setpoint control. The Control Mode column indicates whether the relay is in "Manual," "Setpoint," "KWHR pulse," or "KVARHR pulse" mode. The Status column on the screen indicates whether the relay is "Operated" or "Released" at the present time.

If you need other information about the meter's relays, refer to the operator's manual for 4700 power meters (manual no. SG-6018).

4 Manual Control of Field Devices

4.2 Manual Control for Static Trip IIIC Trip Units

After you enable the manual control option for a Static Trip IIIC, you can then select the device from the Manual Control Menu, and the following screen appears:



Screen 1.7.2. Manual Control Screen for Static Trip IIIC Trip Units

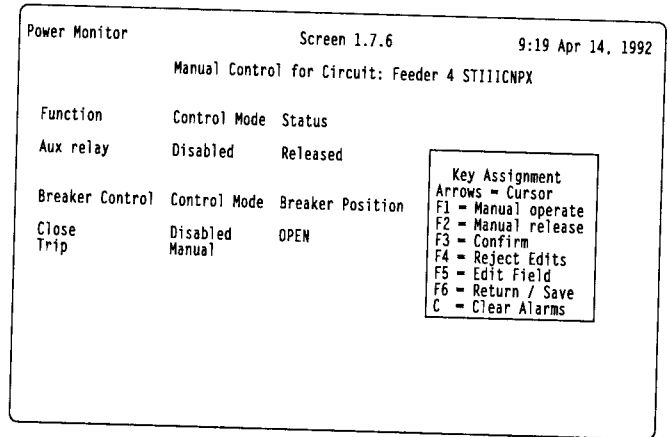
The Manual Control screen for the Static Trip IIIC trip unit offers two outputs to control the breaker: Close and Trip. Use the Arrow keys to select either of these outputs with the cursor, and then use the Function keys to operate the breaker and confirm the settings.

The Manual Control screen also tells you the present position of the breaker. This field indicates either "Open," "Closed," or "Tripped."

If you need other information about the outputs for the trip unit, refer to the operator's manual for Static Trip III trip units (manual no. SG-3118-01).

4.3 Manual Control for Static Trip IIICP Trip Units

After you enable the manual control option for a Static Trip IIICP, you can then select the device from the Manual Control Menu, and the following screen appears:



Screen 1.7.6. Manual Control Screen for Static Trip IIICP Trip Units

The Manual Control screen for the trip unit offers three outputs: one for operating an Auxiliary Relay and two others for operating the breaker. Use the Arrow keys to select either of these outputs, and then use the Function keys to operate them.

For all three outputs, you must set the Control Mode to "Manual" before you can operate the output; however, only the Auxiliary Relay output allows you to set the Control Mode from the Manual Control screen. The Comm. Close and Comm. Trip outputs must be enabled on the trip unit's Device Configuration screen (screen 1.5.1.4.6). If the Control Mode for these outputs reads "Manual" on the Manual Control screen, you can operate the circuit breaker outputs from this screen. (If you need help with configuring the Static Trip IIICP trip unit, refer to section 3.3.4 above.)

To enable or disable the Auxiliary Relay output from the Manual Control screen, position the cursor in the Control Mode field. Then press F5 to edit the field, and use the Arrow keys to select "Manual" (to enable manual control) or "Disabled" (to disable manual control).

The Close and Trip outputs are subject only to the Manual Operate function, which causes the appropriate relay to operate for 100 milliseconds to close or trip the breaker. These two outputs cannot be configured for any other purpose.

The Auxiliary Relay output can be used for a variety of applications. For example, you can use it to "open" a breaker or to

4 Manual Control of Field Devices

control some other device, such as an audible or visual alarm. You can edit the Auxiliary Relay field on the Manual Control screen (by pressing F5) to provide a name that relates to its function. And in addition to controlling this output from the Manual Control screen, you can configure the trip unit's alarm parameters to operate the Auxiliary Relay. (Refer to section 3.4.4 above for information on configuring alarm parameters to operate the relay.)

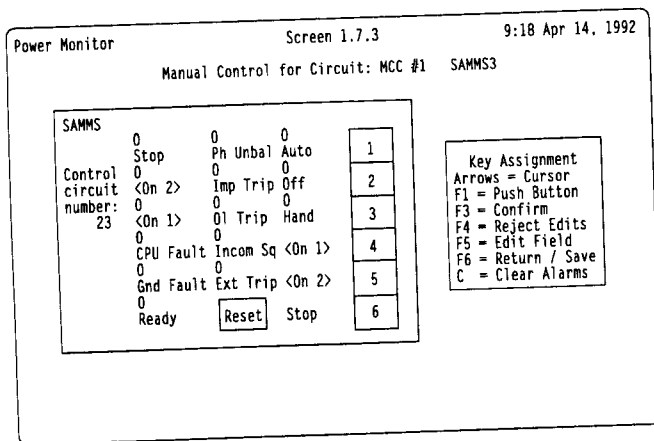
When you enable manual control of the trip unit, the Alarm Limits functions are then prevented from operating the Auxiliary Relay. Under manual control, the relay can be "operated" or "released;" however, if the relay is used to open the breaker, the relay is "operated" until the trip unit senses that the breaker is open, at which point the trip unit releases this relay output to avoid forcing the breaker to open again. This sequence of events is reflected on the Manual Control screen in the Status field for the Auxiliary Relay; the status changes to "Operated" when you press F1 and then changes to "Released" when the breaker actually opens.

When you disable manual control, thus returning control of the relay to the Alarm Limits functions, the output remains "Operated" as long as any of the alarms remains active, regardless of the breaker position.

If you need other information about the outputs for the trip unit, refer to the operator's manual for Static Trip III trip units (manual no. SG-3118-01).

4.4 Manual Control for SAMMS Devices

After you enable the manual control option for SAMMS, you can then select the device from the Manual Control Menu, and the following screen appears:



Screen 1.7.3. Manual Control Screen for SAMMS Devices

The Manual Control screen for the SAMMS device gives you access to all the functions on the front panel of the unit itself. You can operate the seven buttons and monitor the status lights from this Power Monitor screen. You can also change the label for buttons 1 through 6.

Use the Arrow keys to position the cursor on a button (1 through 6 and Reset). Then use the Function keys to perform the desired tasks. You can push a button (F1), confirm an operation (F3), or edit (F5) the name.

The status lights on the front of the SAMMS device are depicted on the Manual Control screen. When a light comes on at the front panel, its representation on the Manual Control screen gets brighter to indicate the change of status or condition.

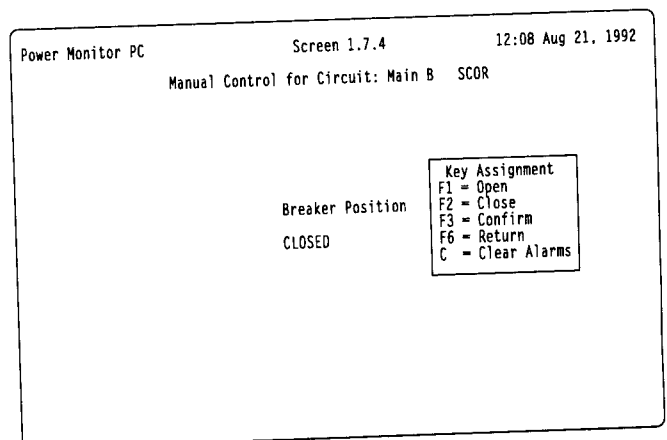
If you need other information about controlling the SAMMS device, refer to the operator's manual for the SAMMS device (manual no. CP3290).

4.5 Manual Control for SCOR Protective Relays

Depending upon which version of the SCOR relay you have, you may be able to close, or open and close, a breaker by manual control. Relays equipped with software version 3.40 or later and with "Option 1-2" give you both the Open and Close functions. Relays with earlier versions of the software and "Option 1-2" offer only the Close function.

After you enable the manual control option for the SCOR relay, you can then select the device from the Manual Control Menu, and the Manual Control screen appears. (If you select a SCOR relay that is not configured to allow manual control from the Power Monitor unit, the following message appears at the bottom of the screen: "SCOR isn't configured for a close relay.")

If the relay operates on software version 3.40 or later, the following Manual Control screen appears:

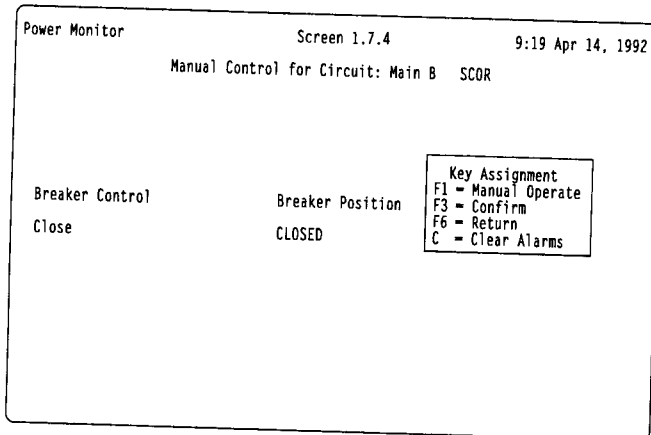


Screen 1.7.4. Manual Control Screen for SCOR Relays (Software Version 3.40 or Later)

4 Manual Control of Field Devices

As shown in the illustration, the screen displays the present status of the breaker, which is either "Open," "Closed," or "Tripped." Press F1 to open the breaker, or press F2 to close the breaker. Then press F3 to confirm the operation.

If the relay operates on software *prior to* version 3.40, the following Manual Control screen appears:



Screen 1.7.4 Manual Control Screen for SCOR Relays
(Software Prior to Version 3.40)

These earlier versions of the relay contain only one output, allowing you only to close the breaker. Press F1 to operate (close) the breaker, and then press F3 to confirm the operation. The screen also tells you the present position of the breaker. This field indicates either "Open," "Closed," or "Tripped."

If you need other information about the outputs for the relay, refer to the operator's manual for the SCOR Overcurrent Protective Relay (manual no. SG-9228-01).

Appendix A: Error and Alarm Messages

The Power Monitor unit generates messages to alert you to abnormal conditions that occur during operation and monitoring of your electrical system. These messages are generally of two kinds: alarms and errors. Alarm messages signal changing conditions in your electrical system (such as a trip event), and error messages indicate problems with the monitoring of your electrical system (such as a communications failure). Alarm messages are displayed in the Event Log (and at the bottom of screens if you enable this option from the Global Settings screen). Error messages are displayed in the System Diagnostic Log.

During the normal operation and monitoring of your electrical system, alarm messages that appear in the Event Log are most important because they tell you if the electrical system itself is functioning abnormally in some way. Event Log messages usually signal some alarm condition; however, the Event Log also displays messages about pickup and trip events and a few other events that pertain to your electrical system.

Event Log messages do not indicate actual errors but indicate instead that the operating parameters that you programmed into your system have been exceeded. Usually you set high and low values and a length of duration for any number of parameters configurable for each device. Whenever any of these values are exceeded, the Power Monitor unit detects the departure from normal operations and writes a message to the Event Log.

Error messages differ from alarm messages in that they generally signal a problem with some aspect of system communications. Whenever these system errors occur, your electrical system will continue to operate normally, but you may have some problems in collecting data. For example, you might occasionally experience a data error on your system, indicating that the Power Monitor unit is having trouble receiving data from a 4700 power meter. This kind of data error is usually self-correcting, and it has no impact on the operation of your electrical system.

The remainder of this appendix first discusses alarm messages pertaining to your electrical system and then lists other nondata messages related to your monitoring system.

A.1 "Alarm On" and "Alarm Off" Messages

Whenever some event occurs that affects the operation of your electrical system, the Power Monitor unit generates an alarm message in the Event Log. It generates "Alarm On"

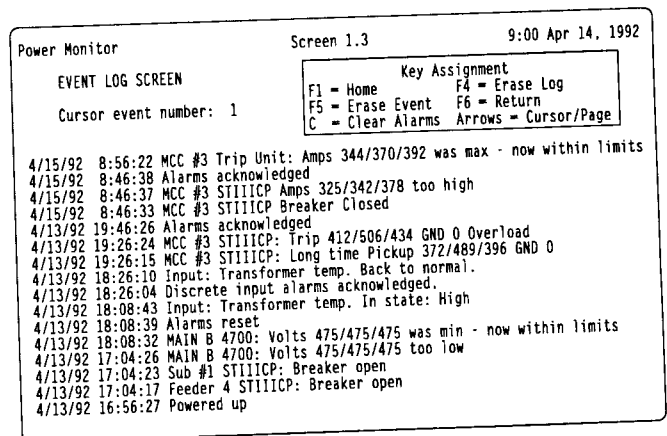
messages whenever an alarm goes active and "Alarm Off" messages whenever an alarm condition returns to normal. For example, when the voltage on Phase A exceeds your defined limit for a specified amount of time, an alarm goes active, and an "Alarm On" message is written to the Event Log. When the voltage level drops to within the normal specified operating range, an "Alarm Off" message is written to the Event Log, indicating that the parameter is "now within limits."

The total number of possible alarm messages makes it impractical to list them all in this manual, but a brief discussion of the general structure and content of messages will allow you to interpret the meaning of any message you might see on the Event Log screen.

The specific content of alarm messages varies somewhat, depending upon which device and which alarm parameter the message is about, but generally they contain the following kinds of information:

1. a date and time stamp of the occurrence in the format MM/DD/YY HH:MM:SS
2. the name of the circuit on which the alarm occurred
3. the name of the device that generated the alarm condition
4. a specific description of the condition, including any values affected by the alarm condition

The following illustration of a typical Event Log screen shows the basic form and content of alarm messages.



Screen 1.3. Event Log Screen

Appendix A: Error and Alarm Messages

A.2 Nondata Error and Alarm Messages

The following table presents nondata error and alarm messages related to your monitoring system. These messages are listed in the System Diagnostic Log, except as noted in the table. Following each message is a brief explanation of its meaning and an indication of the appropriate response to the message.

Message	Explanation	Corrective Action
System scan data corrupted.	EEPROM Failure.	Contact Siemens immediately.
Event log corrupted.	EEPROM Failure.	Contact Siemens immediately.
Min/max data corrupted.	EEPROM Failure.	Contact Siemens immediately.
Polling configuration corrupted.	EEPROM Failure.	Contact Siemens immediately.
Alarm limits corrupted.	EEPROM Failure.	Contact Siemens immediately.
Unknown nonvolatile data type.	EEPROM Failure.	Contact Siemens immediately.
Unit configuration corrupted.	EEPROM Failure.	Contact Siemens immediately.
Global parameters corrupted.	EEPROM Failure.	Contact Siemens immediately.
Discrete inputs corrupted.	EEPROM Failure.	Contact Siemens immediately.
Discrete input alarms acknowledged.	Displayed after alarms were acknowledged on a discrete input display screen.	No response required.
Input: (name) In state: (state).*	The designated discrete input changed to the alarm state.	Press "C" to clear the alarm.
Input: (name) Changed state.*	The designated discrete input changed states.	Press "C" to clear the alarm.
Input: (name) Back to normal.*	The designated discrete input changed back to normal state.	No response required.
Protective settings corrupted.	Protective settings corrupted.	Contact Siemens immediately.
Alarms acknowledged.**	All (non-discrete input) data alarms were acknowledged (by pressing "C").	No response required.
Alarms reset.**	Alarms were reset. (Occurs after the alarm is acknowledged and the condition corrected).	No response required.
Diagnostic codes	Diagnostic codes occasionally appear in the System Diagnostic Log, and they do not indicate any problems. Instead, they are intended to assist Siemens personnel in evaluating the system.	No response required.

*These messages are written only to the Event Log.

**These messages are written to both the System Diagnostic Log and the Event Log.

Circuits and their associated field devices are initially configured at the factory. Occasions arise, however, when you need to reconfigure your system to accommodate a rearrangement of circuits or devices. These occasions are inevitable, and they most frequently occur during circuit maintenance. The purpose of this appendix is to present some typical operating scenarios and to guide you through the steps of reconfiguring your system. Each section of this appendix describes a scenario that could occur during your operation of the Power Monitor unit. It discusses the reason for the occurrence and suggests a solution to any problems or conflicts that might arise, by offering you a step-by-step procedure.

Before you begin reconfiguring your system, you need to be familiar with each aspect of operating the Power Monitor unit as discussed in this operator's manual. Some functions in the configuration process have differing effects on different devices, which may lead you to perform tasks incorrectly if you are not proficient in operating the Power Monitor unit. You should also have on hand the operator's manuals for all other devices on your system. If you should have any questions about the scenarios described in this appendix, contact your Siemens representative.

B.1 Incorrect Communication Address

You may find that the actual communication address of a device differs from the address assigned on the Power Monitor unit's configuration screen for that device. This situation may result from a reassignment of circuits within or between switchgear lineups. Or it may result from incorrectly assigning the field device to the circuits. In this situation, you need to instruct the Power Monitor unit to look for the device according to its actual address.

Assuming that you know the communication addresses for each device, follow the steps below to identify the device's correct address for the Power Monitor unit. (If you do not know a device's address, refer to section B.3 below.)

1. Proceed to the Circuit Configuration Menu (screen 1.5.1).
2. Position the cursor on the circuit that contains the device whose address you want to correct. Press F5 to edit that circuit, and the Circuit Configuration screen (1.5.1.4) appears.
3. Position the cursor on the device for which you want to correct the address, and press F3. The configuration screen for that device appears.
4. Position the cursor on the Address field, and press F5 to edit the field. Type in the device's correct address, and press F6 to save the change.

The Power Monitor unit now knows the device's correct address.

B.2 Duplicate Communication Addresses

In this scenario, two or more devices of the same type have the same communication address, according to their communication address labels. (Note that some devices must have an address that is unique across several types of device. Refer to the note on the Program Address function in section 3.3 for more information on unique addresses.) This scenario does not occur often during the normal course of breaker maintenance or retrofitting. It usually occurs only when devices are moved from one Power Monitor unit lineup to another or when a spare device is brought into service. If an address conflict occurs, you will need to modify the addresses to give each device a unique address..

To assign a new address to one of the conflicting devices, you must first isolate it on the communications bus. Otherwise, having two devices share the same address causes data transmission errors on the Power Monitor unit. One way to isolate such a device is to disconnect all other devices with the same address. When you have isolated the device, follow these steps:

1. Proceed to the Circuit Configuration Menu (screen 1.5.1).
2. Position the cursor on the circuit that contains the device whose address you want to change. Press F5 to edit that circuit, and the Circuit Configuration screen (1.5.1.4) appears.
3. Position the cursor on the isolated device (for which you want to change the address), and press F3. The configuration screen for that device appears.
4. Press A and type in a unique address for the device. Press Enter to program the new address.
5. Press F2 to confirm the new address. Record the new address on the device's communication address label and in the chart at the end of this appendix.
6. Press F6 twice to return to the Circuit Configuration Menu.

Repeat this procedure each time you want to change the address on a device.

Now reconnect the other devices on your system.

B.3 Unknown Communication Address

This scenario tells you how to find an unknown communication address for any device. Occasionally, you may have to add to your system a device that either does not have an address label or that has the wrong communication address recorded on its address label.

Appendix B: Operating Scenarios

You have two options for finding an unknown address. If you can isolate the device on the communications bus, you can use the Power Monitor unit's Universal Request function, which searches all unassigned addresses at all baud rates. (SCOR relays do not support the Universal Request function. If you want to find the address of a SCOR relay, you must use the Find Address function described in this section.) If you cannot easily isolate the device, you can use the Find Address function, which searches all unassigned addresses at the baud rate established on the Global Settings screen (1.5.3). The two sets of procedures that follow tell you how to implement these solutions.

To find an unknown address with the Universal Request function, isolate the device and follow these steps:

1. Proceed to the Circuit Configuration Menu (screen 1.5.1).
2. Position the cursor on the circuit that contains the device whose address you want to find. Press F5 to edit that circuit, and the Circuit Configuration screen (1.5.1.4) appears.
3. Position the cursor on the device for which you want to find the address, and press F3. The configuration screen for that device appears.
4. Position the cursor on the Address field, and press D. The Power Monitor unit issues a Universal Request for identification at all baud rates. When the device with the unknown address responds, the responding address automatically appears in the Address field.
5. When the address updates on the device's configuration screen, press F1 to configure the device, and then press F2 to confirm the new setting.

Now reconnect the other devices on your system.

To find an unknown address with the Find Address function, follow these steps:

1. Proceed to the Circuit Configuration Menu (screen 1.5.1).
2. Position the cursor on the circuit that contains the device whose address you want to find. Press F5 to edit that circuit, and the Circuit Configuration screen (1.5.1.4) appears.
3. Position the cursor on the device for which you want to find the address, and press F3. The configuration screen for that device appears.
4. Position the cursor on the Address field, and press F. The Power Monitor unit sequences through all unassigned addresses at the baud rate established on the Global Settings screen (1.5.3). When the device with the unknown address responds, the responding address automatically appears in the Address field.
5. When the address updates in the Address field, press F1 to configure the device, and then press F2 to confirm the new setting.

6. If the address does not update, the unknown address may be the same as an existing address, or the device may be set at a different baud rate. (One indication of duplicate addresses is the occurrence of communication errors from the device that shares the address for which you are searching.) In this case, change the system baud rate on the Global Settings screen, searching at each baud rate in turn. If the address still does not update, you must reprogram the addresses of all devices on your system and then perform the Find Address again.)

B.4 Removing a Device

Whenever you remove a device from the communications loop, you need to instruct the Power Monitor unit to stop polling that device for data; otherwise, when the Power Monitor unit tries to communicate with the device and does not find it on the loop, transmission errors begin to occur. Follow the steps in this section **before** you remove a device from service (that is, while it is still communicating with the Power Monitor unit).

1. Proceed to the Circuit Configuration Menu (screen 1.5.1).
2. Position the cursor on the circuit that contains the device you want to remove. Press F5 to edit that circuit, and the Circuit Configuration screen (1.5.1.4) appears.
3. Position the cursor on the device you want to remove, and press F3. The configuration screen for that device appears.
4. If you want to remove the device permanently from this circuit, press F3 and then press F1 to confirm the deletion. If you do not want to remove the device permanently, skip this step and go to step 5.
5. Position the cursor on the Polling field, and press F5 to edit the field.
6. Use the Arrow keys to toggle the Polling field to "Off." Press F6 to save the change.

The device is now "off line" from the Power Monitor unit, and you can safely remove it from the lineup.

B.5 Storing Devices

You may sometimes have occasion to store devices for a long period of time, perhaps as a spare for your system. When you bring these spares into service, you will want to avoid having to find their addresses. Siemens recommends that all spares be assigned an address of 222 before you store them, just as all new devices are shipped from the factory with an address of 222.

Before you place any used device in storage, follow the procedure in section B.1 above to reassign the address. Then follow the procedure in section B.5 above to remove the device from service.

Appendix C: Installation

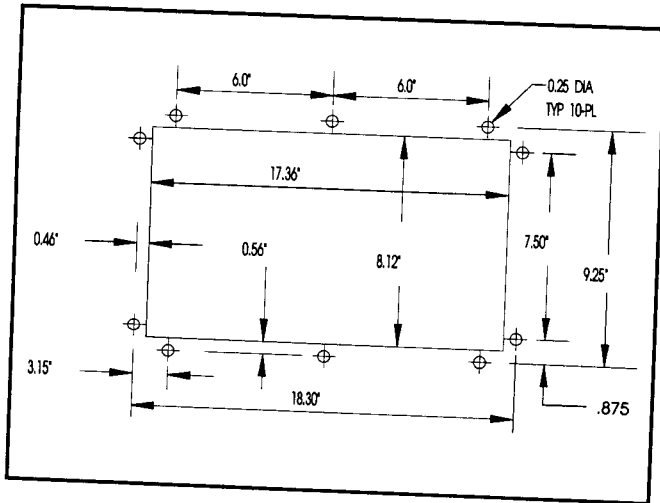
This section provides some basic information about the physical installation of a Power Monitor unit. In most cases, when you purchase a Power Monitor unit, it is installed in the switchgear as part of a system package; however, if you purchased this unit to install on existing electrical equipment, the information in this section will help you install it.

DANGER

Hazardous Voltage.
Will cause severe injury or death.

Do not work on energized equipment.
Before installing this device, make sure you eliminate any possibility of electric shock.

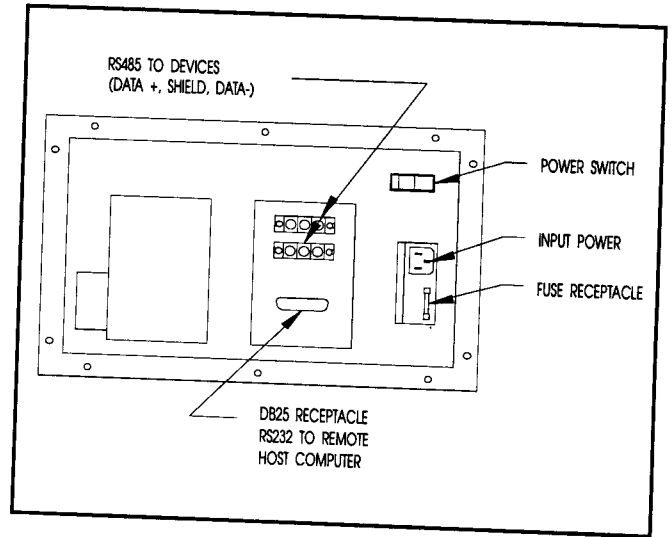
The Power Monitor unit can be panel mounted according to NEMA 4 and NEMA 12 specifications, or you can install it in a standard EIA 19" equipment rack. The following illustration of the panel cutout gives you the dimensions of the physical installation.



Dimensions for Installing a Power Monitor unit

In addition to the dimensions illustrated in the drawing above, note that the Power Monitor unit normally requires a depth of 12" for installation; however, if you install it with the short-haul modem, you need a depth of 14".

After you mount the Power Monitor unit, complete the installation by making the electrical and communications connections. The following illustration shows the points where you make these connections.



Back Panel of the Power Monitor Unit

If you need more information about making the communications connections for the Power Monitor unit, refer to *Installing the ACCESS System* (manual no. SG-6028).

Problem Report for ACCESS Systems and Devices

If you have a problem with Siemens ACCESS systems or devices, please make a copy of this two-page form and fill it out. Then contact your Siemens representative to report the problem. (If you have an emergency, call 1-800-241-4453.)

Customer Information

Job-site contact _____
Company's name _____
Job site or location where equipment is installed _____
Siemens sales order number _____
Siemens manufacturing order number (from manufacturing drawing) _____
Date problem occurred _____
Contact's phone number _____
Contact's fax number _____

Device Information

If you are experiencing a problem with a specific device, please provide the following information from the device's label(s):

Device type _____
Model (or catalog number) number _____
Part number _____
Serial number _____
Hardware version _____
Software version _____
Device options _____

Problem-Specific Information

1. Please provide a brief, general description of any performance problems with the system or any devices. _____

2. Does the system have any of the following supervisory and monitoring devices? How many?

- ACCESS Host PC _____
- Power Monitor unit _____
- Power Monitor PC units _____
- Other (please specify) _____

3. How many of the following ACCESS devices are on the system?

- 3600 power meter _____
- 4300 power meter _____
- 4700 power meter _____
- Static Trip III C trip unit _____
- Static Trip III CP trip unit _____
- SCOR relay _____
- SB breaker trip unit _____
- Sensitrip III trip unit _____
- SAMMS device _____
- Isolated Multi-Drop converter _____
- Multiplexer Translator _____
- Other (please specify) _____

4. What type of electrical equipment is the system or device installed on (switchgear, motor control center, switchboard, etc.)? _____

5. If the problem is with a specific device, describe its configuration; that is, describe its particular operational settings and parameters. (Attach additional sheet if necessary.) _____

7. If the device is installed on an ACCESS system, please provide a summary (or a copy) of any Event Logs and System Diagnostic Logs. _____

6. List any error codes, error messages, or targets that have been generated by the system or by individual devices. _____

8. Please provide any other information that you think might help Siemens correct the problem (such as information about the wiring, system application, system load, operating environment, or about the physical condition of the system or devices). _____

To be completed by Siemens personnel

Initial Problem Report completed by _____
Division or department name _____
Phone number _____
Problem report reviewed by _____
Review date _____
Sales engineer _____
Problem referred to _____
Date problem referred _____
Problem Report tracking number _____
Problem classification code _____

Corrective action taken _____

Upon completing this form, please forward a copy to:

Siemens Energy & Automation, Inc.
Electrical Apparatus Division
Customer Service Department
P. O. Box 29503
Raleigh, North Carolina 27626-0503

Fax Number 919-365-2598

SIEMENS

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