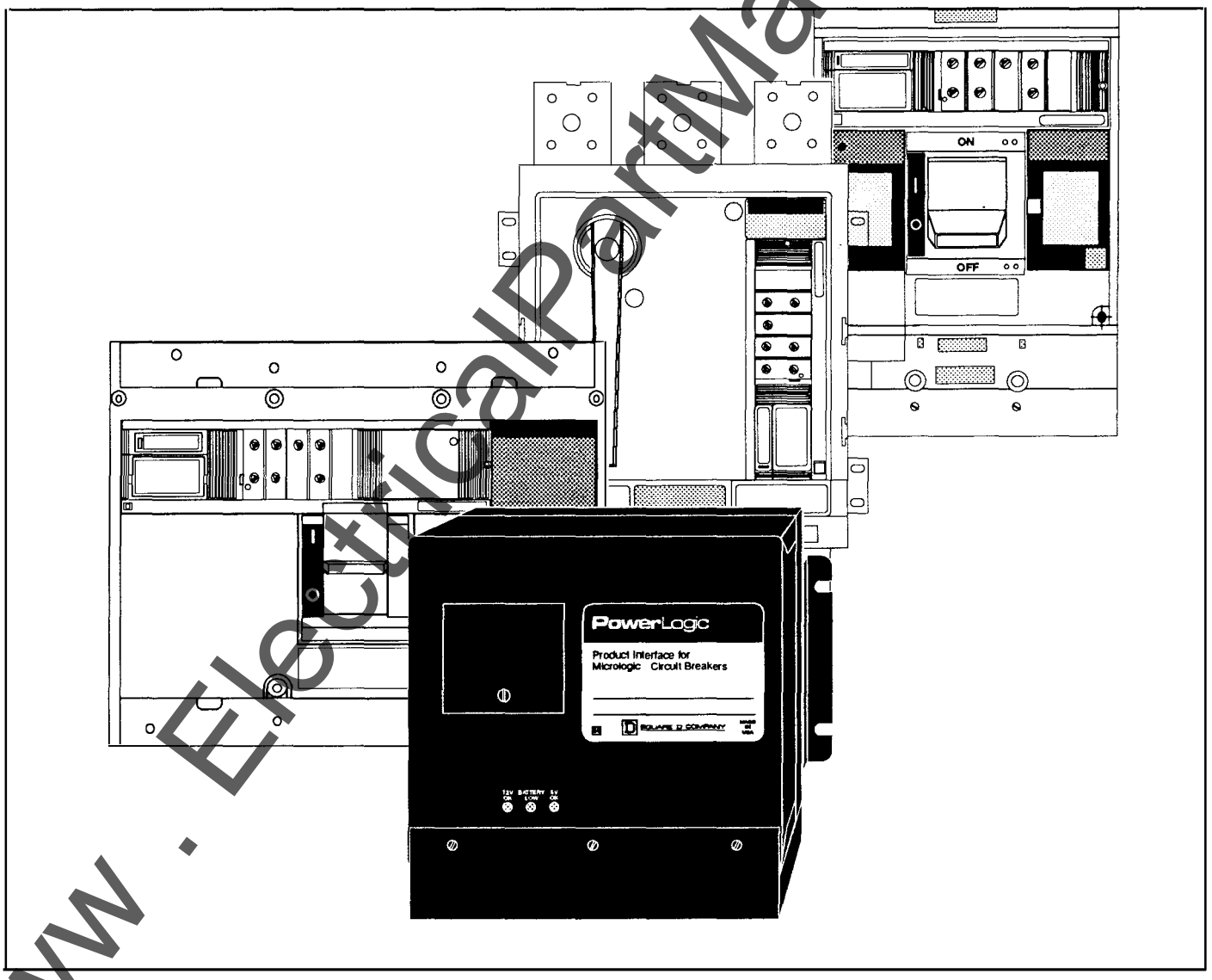
DESCRIPTIVE BULLETIN

3050SM9101 August, 1991

PowerLogic®
Product Interface for Micrologic® Circuit Breakers



SQUARE D

We Respond.®

Interface Connects Micrologic Breakers to PowerLogic

Summary of Information

Real-Time Current

- A, B, C Phase true RMS Currents
- Ground Fault Current (Optional)

Historical Data

- Date and Time of Last Trip
- Cause of Trip
- Phase Currents at Trip
- Ground Fault Current at Trip
- # of Overload Trips
- # of Short Circuit Trips
- # of Ground Fault Trips

Circuit Breaker Data

- Breaker Type
- Sensor Rating
- Plug Rating
- Long Time Settings: Pickup and Delay
- Short Time Settings: Pickup and Delay
- Instantaneous Settings
- Ground Fault Settings: Pickup and Delay

The PowerLogic® Product Interface for MICROLOGIC® circuit breakers, together with MICROLOGIC full function circuit breakers, provides an economical means to perform remote current monitoring, without the need for additional current transformers or metering equipment. In addition, the Product Interface reports a wealth of valuable historical trip data and breaker data from MICROLOGIC full function circuit breakers.

The Product Interface can be mounted in QED switchboards to enable local and remote monitoring of circuit breaker data. The data from up to 32 circuit breakers can be displayed using a PowerLogic System Display for circuit breakers, or an IBM PC compatible computer equipped with PowerLogic software. Using the Square D SY/NET® network, personal computers running PowerLogic software can monitor virtually any number of MICROLOGIC circuit breakers, PowerLogic Circuit Monitors, Lifegard® Model 85 Transformer Temperature Controllers, and other compatible devices.

Real-Time Current Values

The Product Interface reports per-phase RMS currents, allowing you to evaluate circuit loading and avoid overload conditions. And for circuit breakers equipped with a ground fault sensor, ground fault current can also be monitored.

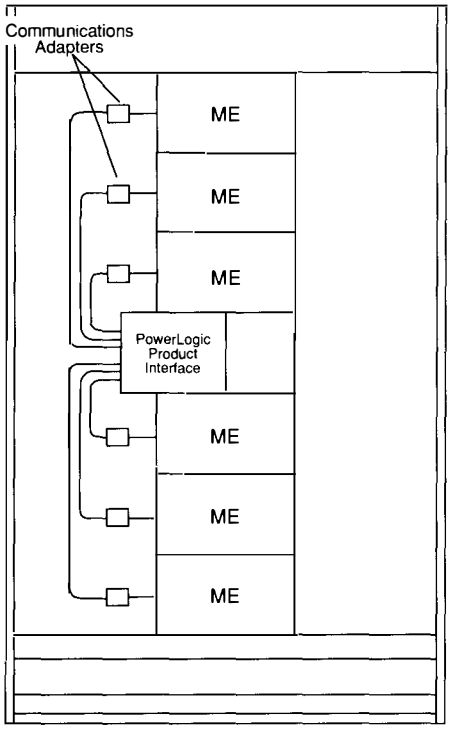
Circuit Breaker History

During troubleshooting stages, the trip unit's historical data, reported by the Product Interface, can aid in reducing further system down-time and help in preventing future electrical outages. Last trip data provided includes Cause of Last Trip, Date and Time of Last Trip, and Phase and Ground Fault Current Magnitudes at time of trip.

And, to aid in preventative maintenance planning, the Product Interface reports a summary of the total number of trips for overload, short circuit and ground fault.

Circuit Breaker Data and Trip Settings

Circuit breaker data available through the Product Interface includes the type of breaker, the sensor rating and the plug rating. In addition, the trip unit delay and pickup settings for Long Time, Short Time, Instantaneous, and Ground Fault are provided. This data allows you to compare the settings to existing records, to determine tampering or inadvertent changes to the protection functions. And using the System Display for MICROLOGIC circuit breakers with optional printer port, you can send the data to a serial printer creating a permanent record of the breaker's settings.



The Product Interface mounted in a QED-2 switchboard.

Product Interface Mounts Easily in Switchboards

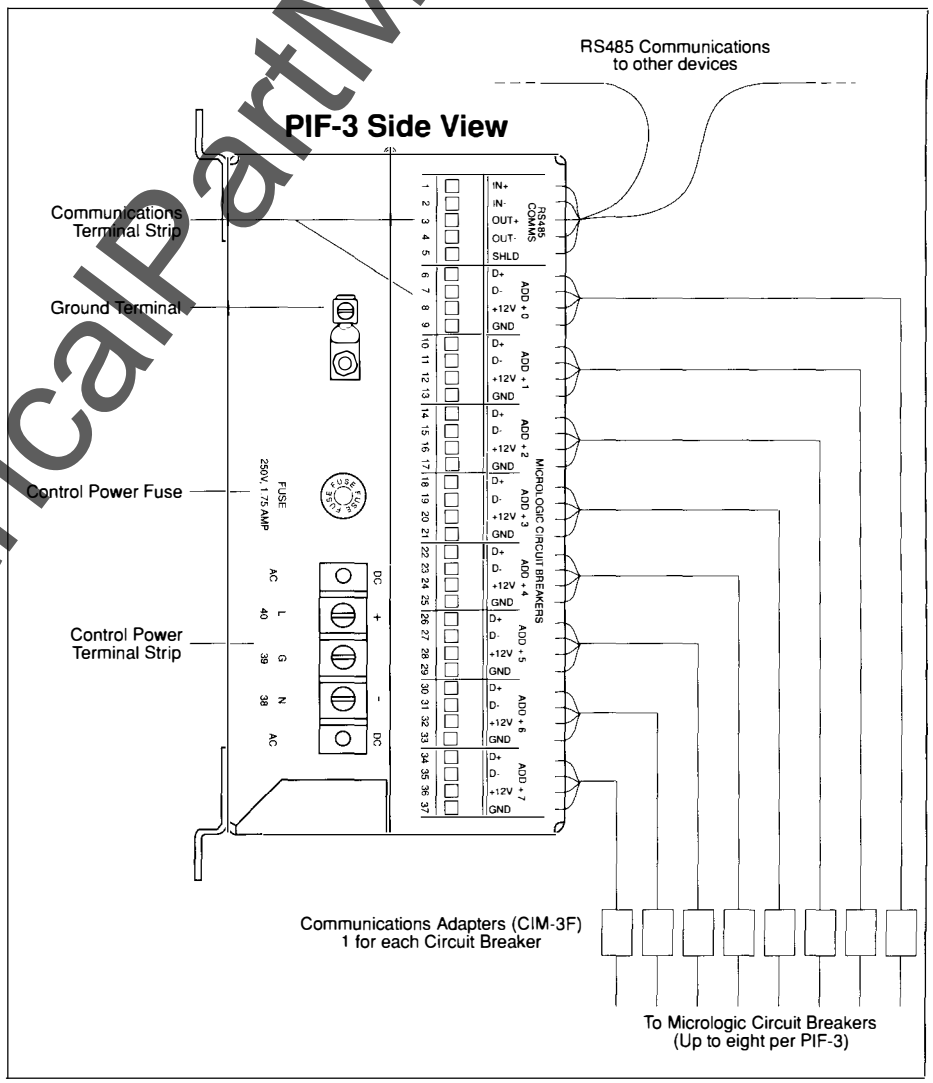
The Product Interface mounts easily in Square D I-Line panelboards and QED switchboards. In new equipment, any MICROLOGIC full function circuit breaker can communicate to the Product Interface. These include the ME, NE, PE, and SE circuit breakers.

The Right Connections

The Product Interface provides eight removable terminal plugs for connection of up to eight MICROLOGIC circuit breakers. Each MICROLOGIC circuit breaker is wired to a communications adapter (CIM3F). Each communications adapter is then connected to the terminal strip on the side of the Product Interface, as illustrated in the figure to the right.

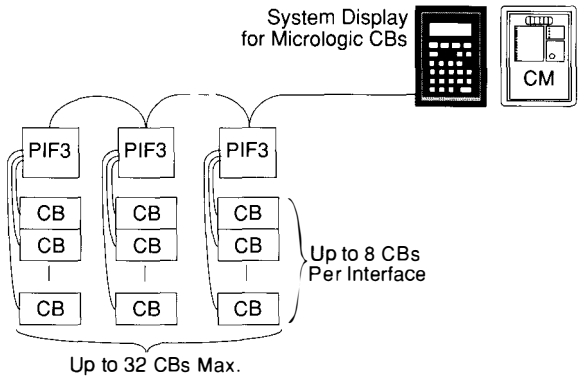
A removable RS-485 terminal plug is used to daisy-chain the Product Interface to other PowerLogic compatible devices. The following page illustrates typical system configurations.

The Product Interface can communicate to up to eight MICROLOGIC circuit breakers.



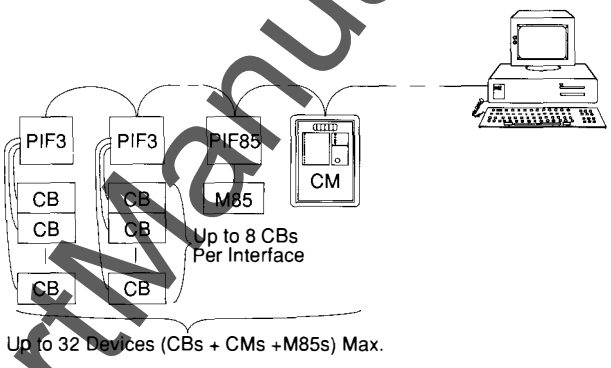
SYSTEM 1 - Local Monitoring

MICROLOGIC circuit breakers (up to 32) can be connected via a Product Interface (up to 8 CBs per PIF-3) to a PowerLogic System Display for circuit breakers. A Circuit Monitor with its own display typically provides main metering.



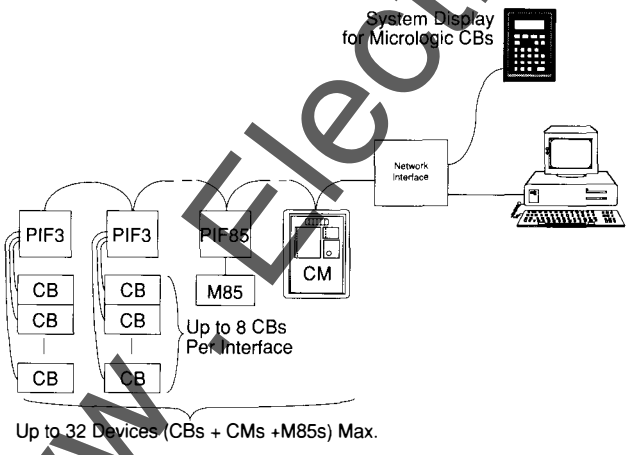
SYSTEM 2 - Remote Monitoring

MICROLOGIC circuit breakers and other compatible devices (any combination up to 32) can be connected to a personal computer equipped with a SY/LINK® PC interface board.



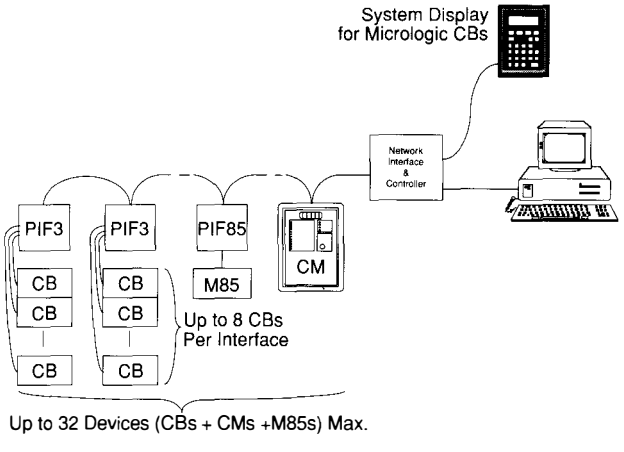
SYSTEM 3 - Local & Remote Monitoring

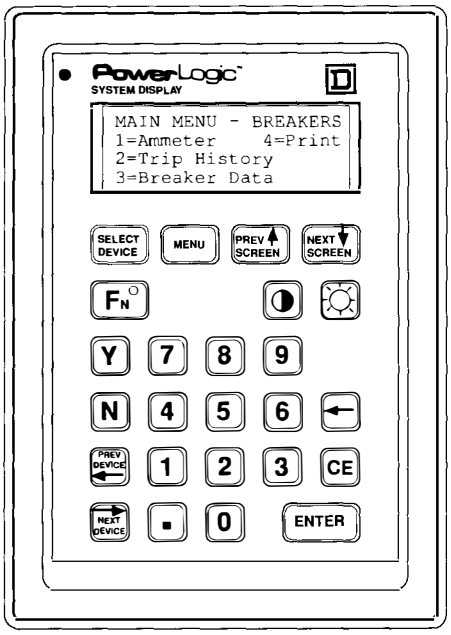
MICROLOGIC circuit breakers and other compatible devices (any combination up to 32) can be connected to a PowerLogic Network Interface Module (PNIM) for connection to the SY/NET® network. A PowerLogic System Display for MICROLOGIC circuit breakers provides local readout of circuit breaker data.



SYSTEM 4 - Local & Remote Monitoring & Control

In addition to the components shown for System 3, a SY/MAX® programmable controller can be used to provide automatic control capabilities on a custom basis.





The SD-100 provides local or remote display of circuit breaker information.

Centralized Display

The PowerLogic System Display for MICROLOGIC breakers can display data from up to 32 circuit breakers. The System Display can be mounted right at the switchboard or located up to 10,000 feet from the last Product Interface on the communications link. The System Display provides a simple menu structure for ease of use. From the main menu screen, the operator chooses display screens for Metering Data, Trip History, and Circuit Breaker data. The System Display is available with an optional RS-232 serial printer port. On user command, a standard printout of one circuit breaker's phase currents, last trip data, trip events summary, and breaker settings can be sent to a serial printer.

```
MAIN MENU - BREAKERS
1=Ammeter     4=Print
2=Trip History
3=Breaker Data
```

The System Display provides a simple menu structure for quick access to breaker data.

```
FEEDER 6 - NORTH #06
Ammeter, RMS(A)
Ia=   567     Ic=   574
Ib=   581     Igf=   13
```

View real-time current values for up to 32 circuit breakers at a centralized location.

```
FEEDER 6 - NORTH #06

Last Trip Date/Time:
06/25/91 09:25:51.02
```

Last trip historical data can help prevent future electrical outages.

Software Options for the PC

The PowerLogic Product Communications Software (PSW-101) is an easy-to-use, menu-driven software package that displays data from the Product Interface for MICROLOGIC circuit breakers, from PowerLogic Circuit Monitors, and from Lifegard® Model 85 Transformer Temperature Controllers. PSW-101 can display data from up to 99 of these devices on any IBM or compatible personal computer. For laptop computers and IBM PS-2s, which cannot use a SY/LINK card, the software can be configured to communicate through a serial communications port.

```
VIEW OTHER INFORMATION                    Device #:  1    Label: FDR4
Circuit Breaker Data                      Nameplate: LINE2 FINAL ASSY

 Present Readings                          Breaker Data
 Current, Phase A rms        131 A         Breaker Type                ME
 Current, Phase B rms        127 A         Sensor Rating            250 A
 Current, Phase C rms        129 A         Plug Rating            0.7000
 Current, Ground Fault         6 A
                                           Settings  --- Pickup  Delay
 Last Trip Readings                        ▮ Long Time    0.90   2.00
                                           ▮ Short Time   2.00   0.10 I2T Out
 Current, Phase A rms        197 A         ▮ Instant.      N/A
 Current, Phase B rms        195 A         ▮ Grnd Fault   0.55   0.10 I2T Out
 Current, Phase C rms        193 A
 Current, Ground Fault         6 A         Maintenance Memory
 Cause of Trip           OverLoad          # of Overload Trips             2
 Time: 29-Jul-1991  2:24:03.11 PM          # of Short-Circuit Trips        4
                                           # of Ground Fault Trips         3

 F1 = Menu                                 ← → = PREV/NEXT Device   Esc = Und
29-Jul-1991   2:31:51 PM                          Device  1 (CB)
```

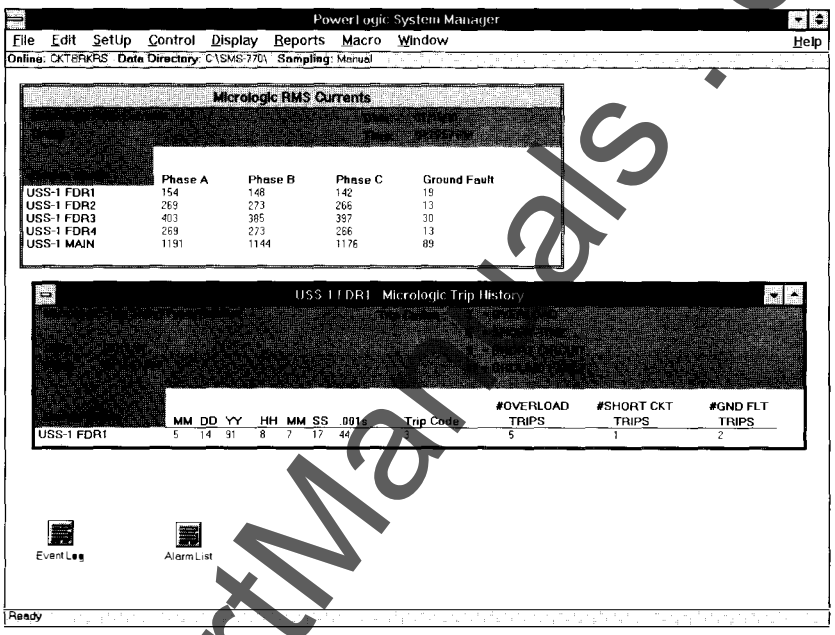
PSW-101 reports real-time phase and ground fault currents, comprehensive last trip readings, circuit breaker data including breaker settings, and breaker maintenance data.

Advanced Software for . . .

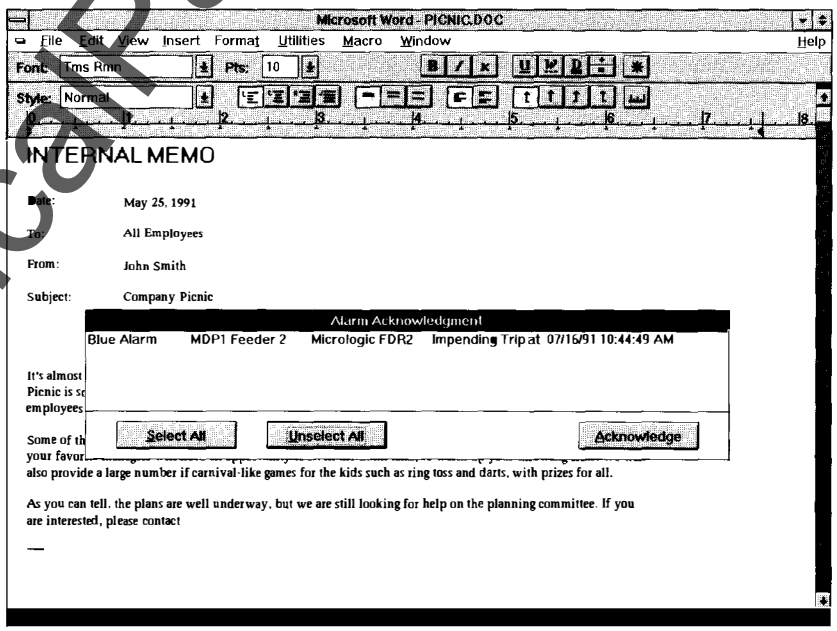
System Manager ™ Helps Manage Your Power System

PowerLogic System Manager Plus™ is a powerful tool for monitoring large electrical distribution systems. System Manager Plus can display data from any number of MICROLOGIC Circuit Breakers, PowerLogic Circuit Monitors, Model 85 Transformer Temperature controllers, SY/MAX PLCs and other compatible devices. The software collects system-wide information and displays it in a wide variety of formats. Standard Circuit Monitor display formats include real-time and historical data tables, time trend plots, meter panels, bar charts, and waveform plots. In addition, System Manager Plus provides the capability to create custom tables. Data taken from the Product Interface can be linked to a custom table for real-time display of circuit breaker data.

System Manager Plus can monitor circuit breakers for alarm conditions based on user-specified phase or ground fault current setpoints. It can also monitor trip unit 90 percent overload and 100 percent overload pickups. And System Manager can alarm when a circuit breaker trips. When System Manager detects an alarm condition, it displays an alarm message on the screen. Each alarm occurrence can be recorded in the event log file. Since System Manager is a Windows 3.0 compatible application, you can run other Windows applications, such as word processors or spreadsheets, while System Manager logs data and checks for alarms in the background.

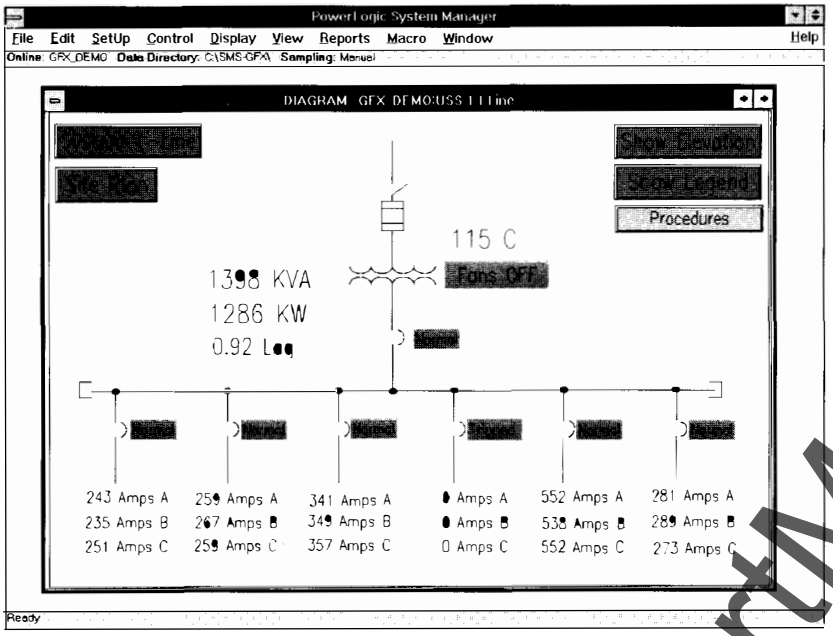


The powerful System Manager Plus software allows you to create custom tables to display circuit breaker data.

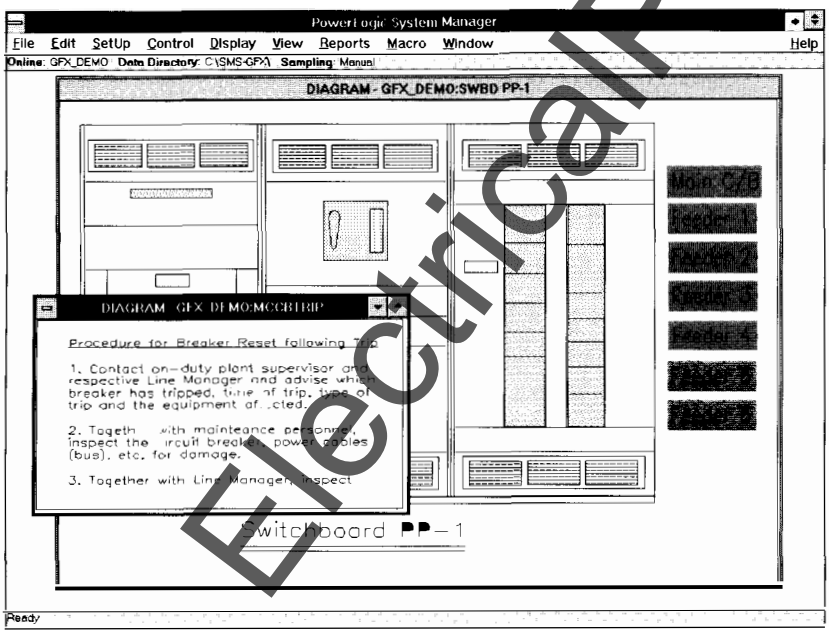


Pre-trip alarm indication, keeps you in control of your power system. You can even run other applications while System Manager checks for alarms.

. . . Power System Monitoring



Display circuit breaker data directly on a one-line diagram, using the PowerLogic Interactive Graphics Interface software.



Important procedural information can be linked to a diagram and accessed with the click of a button.

Interactive Color Graphics Add Simplicity

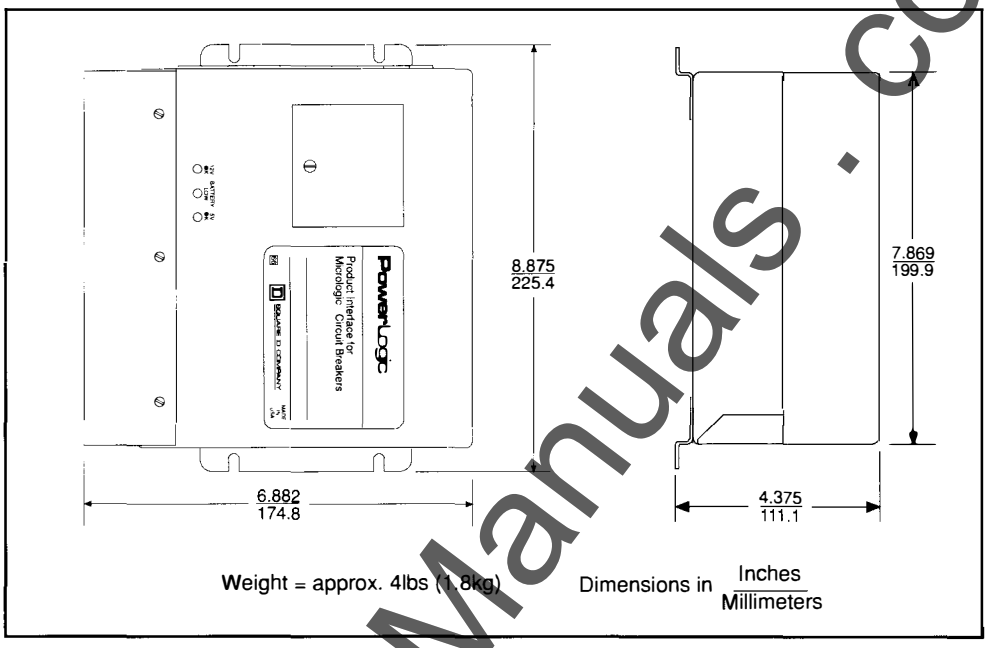
Real-time circuit breaker data can be viewed directly on a drawing, such as a one-line diagram or elevation view, using the PowerLogic Interactive Graphics Interface (GFX). GFX is an add-on program for System Manager or System Manager Plus. A simple Windows 3.0 drawing package, included with GFX, allows you to create and maintain drawings as needed.

Data blocks showing circuit breaker loading, ground fault current, circuit breaker status, and more can be placed on a drawing. GFX provides you with complete control over the size, type, location, display units, and color of each data block. Using the powerful hyper drawing block feature, drawings can be linked together providing increasing layers of detail for a large facility. And, when coupled with System Manager Plus, GFX can be used to perform interactive control operations such as breaker control, load shedding, and so on.

GFX is not limited to displaying graphical drawings. In the example to the left, a diagram window contains a procedure for resetting a breaker following a trip. Windows such as this can be linked to a one-line diagram or elevation view using hyper drawing blocks, allowing the operator to access critical reference information at the click of a button.

Product Interface for Micrologic Circuit Breakers

Dimensions & Weight



The compact Product Interface for MICROLOGIC Circuit Breakers mounts easily in low-voltage switchboards.

Specifications

Communications ..... 1 - RS485, 8 - MICROLOGIC connectors
Clock/Calendar ..... Accuracy +/-4 sec in 24 hrs (at 25° C)
Electrical
  Control Power Input
    Nominal Voltage ..... 120 VAC
    Operating Range ..... 85-132 VAC
    Burden ..... 1.1A @ 120 VAC (132 VA)
    Frequency Range ..... 47.0 to 65.0 Hz
    Isolation ..... 2000 V, 1 min.
  Ride Through on Powerloss ..... 20 ms at 120 VAC
  Fusing ..... 2A 250V Slow Blow
  +12V LED ..... indicates +12V power supply ok
  +5V LED ..... indicates +5V power supply ok
  Battery Low LED ..... when on, indicates low battery voltage
Environmental
  Operating Temperature ..... 0 to 70° C
  Storage Temperature ..... -40 to +85° C
  Humidity Rating ..... 95% RH max non-condensing

Ordering Information

Product	Class	Type
Product Interface for MICROLOGIC Circuit Breakers ①	3050	PIF-3
Associated Products...		
Communication Adapter for MICROLOGIC Breakers ②	690	CIM3F
System Display for MICROLOGIC Circuit Breakers	3050	SD-100-X1
System Display with Printer Port for MICROLOGIC	3050	SD-120-X1
Product Communications Software	3080	PSW-101
System Manager Plus Software	3080	SMS-770
Interactive Graphics Interface Software	3080	GFX-700

Ordering Notes:

① One Multipoint Communications Adapter (3090 MCA-485) and one Multipoint Communications Terminator (3090 MCT-485) required per RS485 communications link.

② Order one communications adapter (Catalog No. CIM3F) per MICROLOGIC circuit breaker. Order point is Cedar Rapids.

For further information, contact your nearby Square D sales office or call or write to:
Square D Company • PowerLogic • 330 Weakley Rd • Smyrna, TN 37167 • Ph (615) 459-8500

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