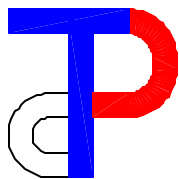# PROFILINK/908

Modicon® S908 Remote I/O
To Profibus DP
Gateway

www.pct-inc.com   www.profibus.com

PROFILINK/908

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Revision History

1/2005	Initial release
4/2005	Updated support for holdup word emulation

Table 1 Revision History

Acknowledgements

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Modicon® is a trademark of Schneider Automation, Inc.
D/3 DCS® is a trademark of Novatech Process Systems, LLC
PROFILINK/908 ™ 2002 Process Computer Technology, Inc.
GATEWAY 16000 ™ 2002 Process Computer Technology, Inc.

Introduction

Application

PROFILINK/908 provides a cost effective method of migrating Modicon® Quantum and 800 Series Remote I/O (RIO) onto a Profibus-enabled Distributed Control System (DCS). The PROFILINK/908 can also be used to add Modicon® S908 RIO to an existing DCS via Profibus-DP.

The PROFILINK/908 transparently translates the S908 protocol to Profibus-DP by appearing as multiple Profibus slaves to the DCS controller. By translating the S908 network and protocol to Profibus, all existing Modicon® RIO hardware and associated field wiring remain intact, resulting in a significant cost and time savings. The PROFILINK/908 allows hardware installation and transition time to be reduced from weeks to a matter of hours.

Features

Supports full S908 network of 32 drops.
Modicon® Quantum and 800 Series remote I/O are supported on the same PROFILINK/908.
Connects to any DCS with Profibus-DP connectivity
The PROFILINK/908 is completely configured via the standard Profibus configuration utilities supplied with the DCS. No offline configuration of the PROFILINK/908 is required.
Retains all I/O diagnostic functionality
DIN Rail mounting or optional 19" rack mount
Auto ranging AC or 24 Volt DC input power
Redundancy is supported with single or dual Profibus-DP segments

Table of Acronyms

The following acronyms are used throughout this document:

GSD	German acronym roughly translated to Device Specification
PCT	Process Computer Technology, Inc.
RIO	Remote I/O. In this document, RIO refers specifically to the Modicon® Quantum and 800 Series hardware and network cabling.

Table 2 Acronyms

Specifications

Maximum Power Requirements

120 VAC 60HZ	240 VAC 50HZ	24 VDC
0.2 Amps	0.1 Amps	0.78 Amps

Dimensions

The dimensions of the PROFILINK/908 enclosure are 9" (Length) x 5.6" (height) x 5.2" (depth).

Mounting

The PROFILINK/908 is designed to be DIN Rail mounted   An optional chassis is available to mount the PROFILINK/908 in a standard 19" rack.

Overview

About PCT

Process Computer Technology (PCT) is an innovative dynamic company serving the process control industry. PCT has been providing engineered solutions for Industrial Automation and Process Control for ten years.

The PROFILINK/908, gateway for connecting Modicon® Remote I/O to Profibus enabled control systems, is the result of a convergence between two PCT core competencies: PLC systems integration and upgrade hardware development for the D/3 DCS®. Many D/3 DCS® systems have Modicon® Remote I/O utilizing the S908 protocol as the native I/O in place of the original 16000 I/O.

After successfully developing the GATEWAY 16000 for connecting the D/3 DCS® 16000 I/O to any Profibus enabled control system, PCT hardware and software designers applied their skills to the Modicon® Remote I/O. The result is the PROFILINK/908, which is a gateway for the Modicon® I/O S908 protocol, and Profibus enabled control systems.

PCT was incorporated in 1992 to provide products and services for Factory Automation and Process Control. We specialize in programmable logic controller (PLC) systems integration, D/3 DCS® third party hardware upgrades and Profibus solutions for open control systems.

For more information about PCT's products and services, refer to the web site at www.pct-inc.com.

Profibus-DP

Profibus is a defacto industry-standard remote I/O network supported by most major DCS vendors. Profibus–DP is specifically optimized to support large volumes of high-speed remote I/O on a single network.

Profibus supports I/O equipment from several vendors in a very structured and standardized manner. All Profibus device vendors must supply information on the characteristics of their device via a GSD file. This GSD file (German acronym for Device Specification) contains information used by the control system to present vendor-specific configuration options to the user for new equipment in a consistent manner.

Profibus devices are addressed by means of Slave ID (0-125) and offset. Most control systems present the addressing to the user by means of slave, module, offset or channel. Each Profibus slave can be configured with up to 244 bytes of input data and up to 244 bytes of output data. Some control systems and configurations may limit the maximum amount of data a slave can handle.

Process Computer Technology, Inc (PCT) is a member of the Profibus Trade
Organization (PTO). For more information on Profibus and the PTO, refer to the PTO
web site at www.profibus.com.

Modicon® S908 RIO Network

S908 is a Remote I/O (RIO) network by Schneider Automation, Inc.'s Modicon® unit.
The network and protocol are optimized for the Modicon® RIO hardware and processors.
S908 supports, among others, remote I/O hardware from the Modicon® Quantum and
800 Series. Modicon® Quantum and 800 Series RIO hardware can be mixed on the same
network. Both redundant (dual cable) and non-redundant (single cable) configurations
are supported.

S908 addressing is based upon Drop Number (1-32), Rack Number (1-5), Slot Number
(1-16) and Point Number. The PROFILINK/908 transparently translates between the
Profibus Slave/Module/Channel addressing and the S908 Drop/Rack/Slot/Point
addressing. All module diagnostics are translated to standard or vendor-specific Profibus
diagnostics for presentation via the control system's diagnostic reporting mechanisms.
Each S908 drop can be configured with up to 128 bytes of input data and up to 128 bytes
of output data.

For more information regarding the S908 network, Quantum RIO hardware or 800 Series
RIO hardware, refer to the Modicon® web site at www.modicon.com.

PROFILINK/908 Functional Overview

The PROFILINK/908 appears as several slaves on the Profibus network. It creates one
Profibus "Management Slave" and multiple Profibus I/O slaves. The Management Slave
is used to configure and control the PROFILINK/908 as a unit. The Profibus I/O slaves
communicate with the Modicon® Quantum or 800 Series RIO hardware.

The PROFILINK/908 Profibus "Management Slave" configures the PROFILINK/908
unit as a whole. By adding and configuring virtual modules into the management slave,
the PROFILINK/908 is directed to create Profibus I/O slaves to map to Modicon®
Quantum and/or 800 Series RIO hardware. This management slave does not correspond
to any physical I/O hardware external to the PROFILINK/908.

The PROFILINK/908 creates multiple I/O slaves, one for each Modicon® Quantum
and/or 800 Series RIO rack. The PROFILINK/908 translates between Profibus
commands and data and Modicon® S908 RIO commands and data. For each RIO rack,
the PROFILINK/908 creates an I/O slave for presenting data to the control system. Each
module in the RIO rack is configured as a module in the Profibus slave on the control
system. Different Profibus slave types are used for Modicon® Quantum and 800 Series
RIO racks. Output data is received from the Profibus network, translated and presented
to the Modicon® S908 RIO network. Input data and status are received from the
Modicon® S908 RIO network, translated and presented to the control system via

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Profibus. This translation is completely transparent to the control system and Modicon®
RIO hardware.

Configuration

General

All configuration of the PROFILINK/908 and RIO modules is performed via the Profibus slave configuration utilities supplied by the control system vendor. No additional utilities are required. This configuration capability is facilitated by device-specific Profibus GSD files supplied by PCT. These files are loaded in accordance with the control system's instructions. Three English language GSD files, corresponding to each Profibus slave type, are supplied with the PROFILINK/908: PROFILINK/908 Management Slave (06D6.GSE), PROFILINK/908 Quantum I/O Slave (06D8.GSE) and PROFILINK/908 Modicon® 800 Series I/O Slave (06D9.GSE).

Configuration Sequence

The general steps involved in configuring the control system for use with PROFILINK/908 are as follows:

Install the GSD files on the control system. This is done in accordance with the control system's procedures and varies by system. Note that this step is required to be completed before any PROFILINK/908 units can be configured. Regardless of the number of PROFILINK/908 units installed, this step is only performed once for the control system.

Create Management Slave. This Management slave is the central management unit for each PROFILINK/908 and must be created first. The Profibus slave ID of the management slave must be set to an unused Profibus address on the segment and must match the ID set on the thumbwheel switch on the PROFILINK/908 unit shown in Figure 2.

Configure the S908 Interface Module in the Management Slave. This module is required to be the first module in the Management slave. This module defines parameters that refer to the S908 RIO network as a whole.

For each RIO rack to be configured create and configure a Slave I/O module into the Management slave. This module directs the PROFILINK/908 unit to create a Profibus slave and maps it to the appropriate S908 RIO Hardware.

For each RIO rack to be configured create and configure a Profibus I/O slave of the corresponding type (Quantum or 800 Series).

Create and configure I/O modules in the Profibus I/O slave.

Repeat steps 0-0 for each RIO rack connected to the PROFILINK/908 unit

Repeat steps 0-0 for each PROFILINK/908 unit to be connected to the control system.

```
        ╭─────────╮
        │         │
        ╰────┬────╯
             │
     ┌───────┴───────┐
     │ Install GSD files │
     │    on DCS      │
     └───────┬───────┘
             │
     ┌───────┴───────┐
     │    Create      │
     │  Management    │◄─────────── Yes
     │    Slave       │
     └───────┬───────┘
             │
     ┌───────┴───────┐
     │   Create &     │
     │ Configure S908 │
     │ Interface Module│
     └───────┬───────┘
             │
     ┌───────┴───────┐
     │   Create &     │
     │ Configure I/O  │◄─────────── Yes
     │ Slave Module   │
     └───────┬───────┘
             │
     ┌───────┴───────┐
     │   Create &     │
     │Configure Profibus│
     │  I/O Slave     │
     └───────┬───────┘
             │
     ┌───────┴───────┐
     │  Create and    │
     │ Configure I/O  │◄── Yes
     │    Module      │
     └───────┬───────┘
             │
         ╱───┴───╲
        ╱ More I/O ╲
        ╲ Modules   ╱
        ╱ in Rack?  ╲
         ╲───┬───╱
             │ No
         ╱───┴───╲
        ╱  More   ╲
        ╲ I/O Slaves? ╱
         ╲───┬───╱
             │ No
         ╱───┴───╲
        ╱  More    ╲
        ╲ PROFILINK.908 ╱
        ╱  units?   ╲
         ╲───┬───╱
             │ No
        ╭────┴────╮
        │         │
        ╰─────────╯
```
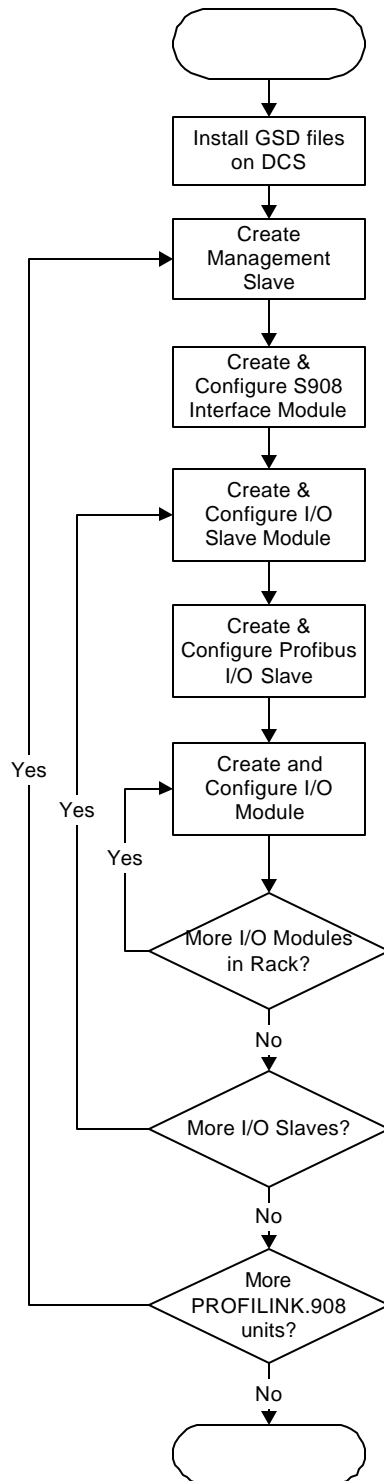
Figure 1 General PROFILINK/908 Configuration Steps

PROFILINK/908 Management Slave

General

When initially configuring a PROFILINK/908, the Profibus Management Slave for the unit is created and configured first in the control system. The address assigned to the Management Slave in the control system is also set on the thumbwheel switches on the actual unit. Once the slave is created, an "S908 Interface Module" is configured as the first module in the Management Slave. For each Quantum RIO rack, an "S908 Quantum I/O Slave Module" is configured into the Management Slave. For each Modicon® 800 Series RIO rack, an "S908 800 Series I/O Slave Module" is configured into the Management Slave. A "System Monitoring Module" can optionally be configured into the Management Slave to retrieve PROFILINK/908 internal statistics.

Slave Parameters

Gateway Type

The Gateway Type parameter specifies whether the PROFILINK is used in a redundant or non-redundant configuration. Valid values are:

Non-redundant

This value indicates the PROFILINK is in a non-redundant configuration.

Redundant/Fault Tolerant

The PROFILINK is installed in a redundant configuration with 2 PROFILINKs connected together.

Media Redundancy

The "Media Redundancy" parameter is used to indicate the Profibus cabling used in redundant configurations. Please see the Typical Installations section for the the various cabling methodologies. This parameter is only used for redundant PROFILINK configurations and is ignored in non-redundant configurations.

Single Media

A single Profibus cable is connected to both units in a redundant PROFILINK configuration. This configuration does not provide redundant Profibus media, but still provides redundant Proflinks and S908 cabling.

Redundant Media

An independent Profibus cable is connected to each unit in a redundant PROFILINK configuration. This methodology provides fully redundant Profibus cabling as well as redundant PROFILINK and S908 cabling.

Report Informational Diagnostics

The PROFILINK reports several informational diagnostics to aid in configuration and troubleshooting. Since Profibus does not differentiate the severity level of diagnostics reported by a slave, all diagnostics are reported as an error. This parameter allows the PROFILINK to be configured to not report these "informational" diagnostics unless another error is reported.

Report Always

Selecting this setting causes the PROFILINK to always report informational diagnostics. On some control systems, this will cause a fault condition to be reported.

Report on Errors Only

```
Selecting this setting causes the PROFILINK to mask informational
diagnostics unless some other error is reported.
```

Max Diag Byte Count

Some control systems cannot handle the Profibus-defined maximum of 237 bytes of diagnostic data. The PROFILINK can be configured to limit the maximum number of bytes of diagnostic data. This parameter should be left at the default of 237, unless the control system documentation explicitly states a smaller maximum.

PFB Interface Failover Priority

In redundant configurations, this parameter assigns a point value to the Profibus interface to be used in calculating relative failover values. If the difference in failover values exceeds the threshold, the unit will fail to the redundant side. This parameter is ignored in a non-redundant configuration. This parameter should be left at the default value.

Failover Priority Threshold

When the failover point value difference between the two sides in a redundant configuration exceeds this threshold, a failover occurs. This parameter is ignored in a non-redundant configuration. This parameter should be left at the default value.

S908 Interface Module

The "S908 Interface Module" is always the first module configured into the Management Slave for each PROFILINK/908. This module directs the PROFILINK to configure the S908 interface for communicating with the S908 RIO network. Any network-wide parameters are set on this module.

Parameters

Watchdog Timeout Word

This is the Watchdog Timeout word used by the S908 interface to disable the S908 interface in the event of an internal failure. This parameter should be left at the default value.

Quantum I/O Slave Module

Each Quantum RIO rack to be scanned by the PROFILINK/908 must have a corresponding "S908 Quantum I/O Slave Module" configured into the Management Slave. The parameters to this module determine the mapping between Profibus (Slave Address) and S908 (Drop Number, Rack Number) addressing. In addition, the fail over priority is set for the slave. By configuring this module into the Management Slave, the PROFILINK/908 creates a Profibus slave of the appropriate type and maps it to the corresponding Quantum RIO hardware.

Parameters

Profibus Slave Address

This parameter instructs the PROFILINK as to the Profibus Station number to associate with this Quantum I/O slave. This value must match the value used in the host control system's configuration for the Quantum drop/Rack.

Failover Priority

Failover point value to be used in calculating failover points in a redundant configuration. This value is ignored in non-redundant configurations. This value should be left at the default setting.

Drop Number

S908 Drop number for the physical I/O associated with this slave.

Rack Number

S908 rack number for the physical I/O associated with this slave. Quantum remote I/O does not currently support more than one rack per drop. This setting should be left at the default value of 1.

Modicon® 800 Series I/O Slave Module

Each Modicon® 800 Series RIO rack to be scanned by the PROFILINK/908 must have a corresponding "S908 800 Series I/O Slave Module" configured into the Management Slave. The parameters to this module determine the mapping between Profibus (Slave Address) and S908 (Drop Number, Rack Number) addressing. In addition, the fail over priority is set for the slave. By configuring this module into the Management Slave, the PROFILINK/908 creates a Profibus slave of the appropriate type and maps it to the corresponding Modicon® 800 Series RIO hardware.

Parameters

Profibus Slave Address

This parameter instructs the PROFILINK as to the Profibus Station number to associate with this 800 Series I/O slave. This value must match the value used in the host control system's configuration for the 800 Series drop/rack.

Failover Priority

Failover point value to be used in calculating failover points in a redundant configuration. This value is ignored in non-redundant configurations. This value should be left at the default setting.

Drop Number

S908 Drop number for the physical I/O associated with this slave.

Rack Number

S908 rack number for the physical I/O associated with this slave.

System Monitor Module

The System Monitor Module provides a means to retrieve PROFILINK internal system statistics as Profibus input data. These values are not of any general value to an end user. This module is documented for informational purposes only and is not supported by PCT.

Input Data

The System Monitor Module provides 30 bytes of input data as described below. All values and offsets are subject to change without notice.

Byte	Type	Description
0	byte	A Side Reboot Count
1	byte	B Side Reboot Count
2	long	A Side Uptime (in seconds)
6	long	B Side Uptime (in seconds)
10	long	A Side Polling Time (in milliseconds)
14	long	B Side Polling Time (in milliseconds)
18	long	Not used
22	long	Not used
26	byte	A Side Software Major Version
27	byte	A Side Software Minor Version
28	byte	B Side Software Major Version
29	byte	B Side Software Minor Version

PROFILINK/908 Quantum I/O Slave

General

Configuring a "S908 Quantum I/O Slave Module" into the Management Slave directs the PROFILINK/908 to create a Profibus slave and map it to the corresponding Quantum RIO hardware. The actual Profibus I/O slave must then be created and configured into the control system. For each Quantum RIO rack, a Profibus Quantum I/O Slave must be created and configured in the control system. Once the slave has been created, the slave parameters are set.

Each module in the rack, starting in slot 1, is inserted and configured. Each module's configuration parameters are then set. For configuration information and options on specific modules, consult the Modicon® Quantum documentation.

Parameters

Drop holdup word

The drop holdup time indicates how long the drop should maintain outputs on a communications failure. If the failure occurs in the S908 communications, the Quantum drop hardware implements the holdup functionality. In the event of Profibus communications failure, the PROFILINK simulates the holdup functionality by forcing all outputs to the appropriate value as configured.
This value is entered in units of 100 milliseconds. An entry of 3 configures the unit with a holdup time of 300 milliseconds.

Supported Quantum Modules

The list of supported Quantum RIO modules is shown below. Additional module support may be added in the future. Contact PCT directly for information regarding new module support or to request support for new modules.

Module Number	Function
140-CRA-931-00	Remote I/O Drop Module (Non-redundant applications only)
140-CRA-931-01	Remote I/O Drop Module
140-CRA-932-00	Dual-channel Remote I/O Drop Module
140-DAI-340-00	Discrete 16 Channel Input, AC 24V, 2x8
140-DAI-353-00	Discrete 32 Channel Input, AC 24V, 4x8
140-DAI-440-00	Discrete 16 Channel Input, AC 48V, 2x8
140-DAI-453-00	Discrete 32 Channel Input, AC 48V, 4x8
140-DAI-540-00	Discrete 16 Channel Input, AC 115V, 16x1
140-DAI-543-00	Discrete 16 Channel Input, AC 115V, 2x8
140-DAI-553-00	Discrete 32 Channel Input, AC 115V, 4x8

Module Number	Function
140-DAI-740-00	Discrete 16 Channel Input, AC 230V, 16x1
140-DAO-840-00	Discrete 16 Channel Output, AC 24-230V, 16x1
140-DAO-842-10	Discrete 16 Channel Output, AC 100-230V, 4x4
140-DAO-842-20	Discrete 16 Channel Output, AC 24-48V, 4x4
140-DAM-590-00	Discrete 16 Channel Input, 8 Channel Output, AC 115V
140-DDI-153-10	Discrete 32 Channel Input, DC 5V, 4x8
140-DDI-353-00	Discrete 32 Channel Input, DC 24V, 4x8
140-DDI-841-00	Discrete 16 Channel Input, DC 10-60V, 8x2
140-DDI-853-00	Discrete 32 Channel Input, DC 10-60V, 4x8
140-DDO-153-00	Discrete 32 Channel Output, DC 5V, 4x8
140-DDO-353-00	Discrete 32 Channel Output, DC 24V, 4x8
140-DDO-843-00	Discrete 16 Channel Output, DC 10-60V, 2x8
140-DDM-390-00	Discrete 16 Channel Input, 8 Channel Output, DC 24V
140-DRA-840-00	Discrete 16 Channel Output, Relay Output (NO)
140-DRC-830-00	Discrete 8 Channel Output, Relay Output (NO/NC)
140-ACI-030-00	Analog 8 Channel Input, Unipolar
140-AVI-030-00	Analog 8 Channel Input, Bipolar
140-ACO-020-00	Analog 4 Channel Output, Current
140-AVO-020-00	Analog 4 Channel Output, Voltage
140-ATI-030-00	Analog 8 Channel Thermocouple Input
140-ARI-030-00	Analog 8 Channel RTD Input
140-AMM-090-00	Analog 4 Channel Input, 2 Channel Output
140-CPS-124-xx	8A Redundant Power supply
140-CPS-114-xx	10A Power supply
140-CPS-111-xx	3A Power supply

Table 3 Supported Quantum Modules

Redundancy Support Module

In addition to physical I/O, the redundancy support module can be installed to retrieve module health information as Profibus input data. *If installed, this must be the last module in the slave*.

The Redundancy Support Module returns one bit per module per data path indicating the module can be accessed. This information is useful in redundant systems to determine which data path to use in retrieving input data.

PROFILINK/908 Modicon® 800 Series I/O Slaves

General

Configuring a "S908 800 Series I/O Slave Module" into the Management Slave directs the PROFILINK/908 to create a Profibus slave and map it to the corresponding

Modicon® 800 Series RIO hardware. The actual Profibus I/O slave must then be created and configured into the control system. For each Modicon® 800 Series RIO rack, a Profibus S908 800 Series I/O Slave must be created and configured in the control system. Once the slave has been created, the slave parameters (Drop Holdup Time) are set. Each module in the rack, starting in slot 1, is inserted and configured. Each module's configuration parameters are then set.

Parameters

Holdup Word

The drop holdup word indicates how long the drop should maintain outputs in the event of a communications failure. If the failure occurs in the S908 communications, the 800 Series drop hardware implements the holdup functionality. In the event of Profibus communications failure, the PROFILINK simulates the holdup functionality by forcing all outputs to zero after the holdup time has expired.

NOTE: All racks on the same drop should have this value set to the same value. If the Holdup Word is set differently for each rack on the same drop, the results are unpredictable.

This value is entered in units of 100 milliseconds. An entry of 3 configures the unit with a holdup time of 300 milliseconds.

Supported Modules

Module Number	Function
B802	8 Channel Discrete Output
B803	8 Channel Discrete Input Module
B804	16 Channel Discrete Output Module
B805	16 Channel Discrete Input Module
B806	32 Channel Discrete Output Module
B807	32 Channel Discrete Input Module
B808	16 Channel Discrete Output Module
B809	16 Channel Discrete Input Module
B810	8 Channel Discrete Output Module
B814	8 Channel Discrete Output Module
B816	16 Channel Discrete Output Module
B817	16 Channel Discrete Input Module
B818	32 Channel Discrete Output Module
B819	32 Channel Discrete Input Module
B820	8 Channel Discrete Output Module
B821	8 Channel Discrete Input Module
B824	16 Channel Discrete Output Module
B825	16 Channel Discrete Input Module
B826	32 Channel Discrete Output Module
B827	32 Channel Discrete Input Module
B828	16 Channel Discrete Output Module
B829	16Channel Discrete Input Module
B832	16 Channel Discrete Output Module
B833	16 Channel Discrete Input Module
B834	8 Channel Discrete Output Module
B835	8 Channel Discrete Input Module
B836	16 Channel Discrete Output Module
B837	16 Channel Discrete Input Module
B838	32 Channel Discrete Output Module
B840	8 Channel Discrete Output Module
B842	8 Channel Discrete Output Module
B846	16 Register I/O Module
B849	16 Channel Discrete Input Module
B853	16 Channel Discrete Input Module
B855	16 Channel Discrete Input Module
B872	4 Channel Analog Output Module
B873	4 Channel Analog Input Module
B875	8 Channel Analog Input Module
B877	6 Channel Analog Input Module
B881	1 Input, 1 Output Register I/O Module

Module Number	Function
B882	2 Input, 2 Output Register I/O Module
B883	3 Input, 3 Output Register I/O Module
B884	4 Input, 4 Output Register I/O Module
B885	6 Input, 6 Output Register I/O Module
B886	8 Input, 8 Output Register I/O Module
B887	12 Input, 12 Output Register I/O Module
B888	16 Input, 16 Output Register I/O Module
B883-200	10-channel Thermocouple input module. This module is currently supported only as an 883 Register I/O Module.
P810	Power Supply Module
J890	S908 RIO communication Module

Table 4 Supported Modicon ® 800 Series Modules

PROFILINK/908 Operation

Startup

During startup, the PROFILINK/908 performs the following:

The PROFILINK/908 unit performs self tests on the CPU, RAM, Profibus interface and S908 interface. If any of these self-tests fail, the unit will not go online.

The S908 RIO configuration and mappings to Profibus are downloaded from the control system via Profibus. This step eliminates all off-line configuration for the PROFILINK/908.

Once the complete configuration is downloaded, the PROFILINK/908 starts Profibus communications with the host. The PROFILINK/908 will not start scanning the RIO hardware until good output data has been received and verified. During this state, the PROFILINK/908 will communicate with the RIO network in "standby" mode to ensure network integrity.

Once all output data has been received, the PROFILINK/908 starts normal scanning.

Profibus Diagnostics

All S908 module diagnostics are either handled internally by the PROFILINK/908 or are translated into standard or vendor-specific Profibus diagnostics for presentation to the use via the standard control system mechanisms. Diagnostic capabilities vary by family and module type within the family. For more information on diagnostics for a particular module, refer to the documentation supplied with the module.

Indicators, Switches and Connectors
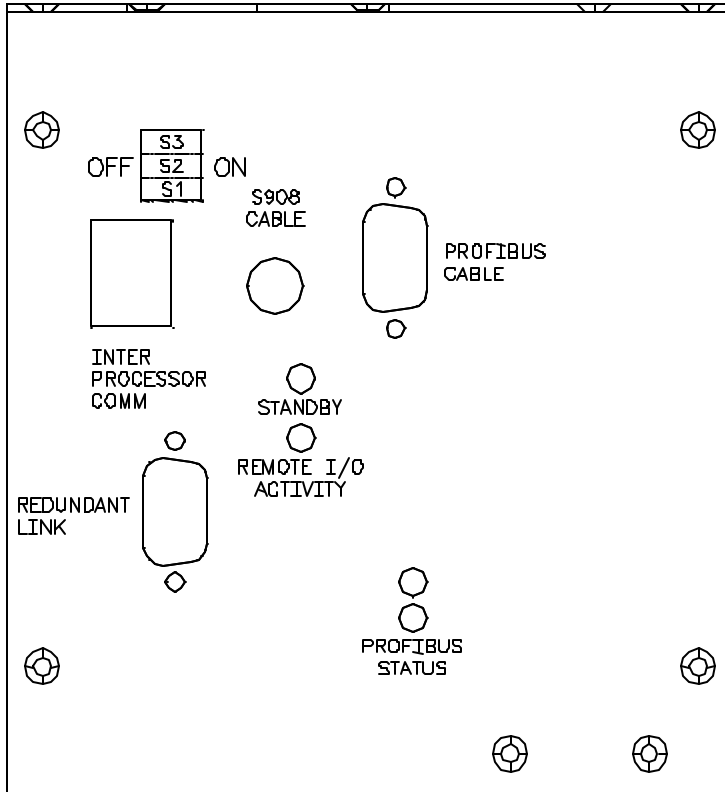

Figure 2 PROFILINK/908 Front Panel

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Figure 3 PROFILINK/908 End Panel

Profibus Interface Indicators

The two indicator LEDs below the Profibus connector are indicators for the Profibus interface status. The meanings of the indicators shown in Figure 3 are as follows:

Upper LED	Lower LED	Description
Green	Green	Normal operation, communicating with host for all slaves.
Orange	Green	Normal internal operation. Not communicating with Host(s) on one or more slaves. This is also normal operation for standby unit in single Profibus cabling configuration.
Red	Off	The PROFILINK/908 unit is starting.
Green/Red Flickering	Off	The PROFILINK/908 unit is initializing and synchronizing with the host.

Table 5 Profibus Interface Indicators

S908 Interface Indicators

The two indicator LEDs below the S908 network connector are indicators for the S908 interface status. The meanings of the indicators shown in Figure 3 are as follows:

Standby LED	Remote I/O Activity LED	Description
Off	Off	The PROFILINK/908 is starting or has failed.
Green	Off	The PROFILINK/908 is initializing configuration information. No scanning of I/O is taking place.
Green	Red (Dim/Flickering)	The PROFILINK/908 unit is operating in Standby mode. This indication is also given when unit has initially configured and is performing consistency checks before scanning I/O.
Off	Red (Dim/Flickering)	The PROFILINK/908 unit is functioning normally in Primary mode.

Table 6 S908 Interface Indicators

General Indicators

The general indicators shown in Figure 2 are as follows:

A Side: In redundant configurations, this indicator illuminates to indicate the "A" side communications gateway. For non-redundant, this indicator is always lit.
Primary: In redundant configurations, this indicator illuminates to indicate the unit that is scanning the S908 RIO in "Primary" mode, i.e. is performing inputs and outputs.
Run: When illuminated, indicates the unit is in running mode.

Setup Switches

Gateway ID: This thumbwheel switch (Fig. 2) sets the Profibus Slave ID for the Management slave for the PROFILINK/908 unit. In redundant configurations, both parts of the redundant unit must be set to the same ID.
S1 and S2 (Fig. 3) select the Profibus Baud Rate:

Baud Rate	S1	S2 (**Left = Off**)
500KB	On	On
1.5MB	Off	On
6MB	On	Off
12MB	Off	Off

S3 (Fig.3) Simplex/Duplex Profibus: Off = Simplex   On = Duplex. Simplex indicates a single Profibus cable is connected to both sides. In duplex mode, a separate Profibus cable is connected to each side and to different Profibus Master interfaces in the control system host.
PRI SELECT/AUTO/PRI LOCK Switch (Fig. 2): This switch has no effect in non-redundant PROFILINK/908.
AUTO (Center Position): Will allow automatic "failover" from Primary unit to Backup unit, if Backup unit is running, if a watchdog timeout or a loss of power occurs in the Primary unit.

PRI SELECT (Momentary): Causes unit to become Primary and scan I/O if unit is running.

PRI LOCK: Forces unit to be Primary, if unit is running, and "locks out" Standby unit from becoming Primary.

Connectors

Refer to Figure 3 for location of the connectors described below.

Profibus Cable: The Profibus cable from the control system host connects to this connector. For redundant Simplex installations, a single Profibus cable connects to both sides of the PROFILINK/908 and to a single Profibus interface in the control system. For redundant Duplex configurations, each side of the PROFILINK/908 is connected to a separate Profibus cable to separate Profibus interfaces in the control system host. Care must be taken to ensure that the "A" side Profibus cable is connected to the "A" side PROFILINK/908 and to the "A" side S908 RIO cable. Refer to Figure 4, Figure 5 and Figure 6 for typical cabling and installation options.

S908 Cable: The S908 RIO cable connects to this connector and to the drop modules in each Quantum and 800 Series drop.

Redundancy Link: For redundant configurations, the redundancy interlink cable connects both sides of the PROFILINK/908 together. Care should be taken to ensure that the "A" side of the redundancy interlink cable is connected to the "A" side PROFILINK/908. For non-redundant configurations, the Redundancy terminator is placed on this connector instead.

IPC Link: The interprocessor communication link connects both sides of the PROFILINK/908 together. Status and data is communicated to both sides via this cable.

Typical Installations

Non-Redundant
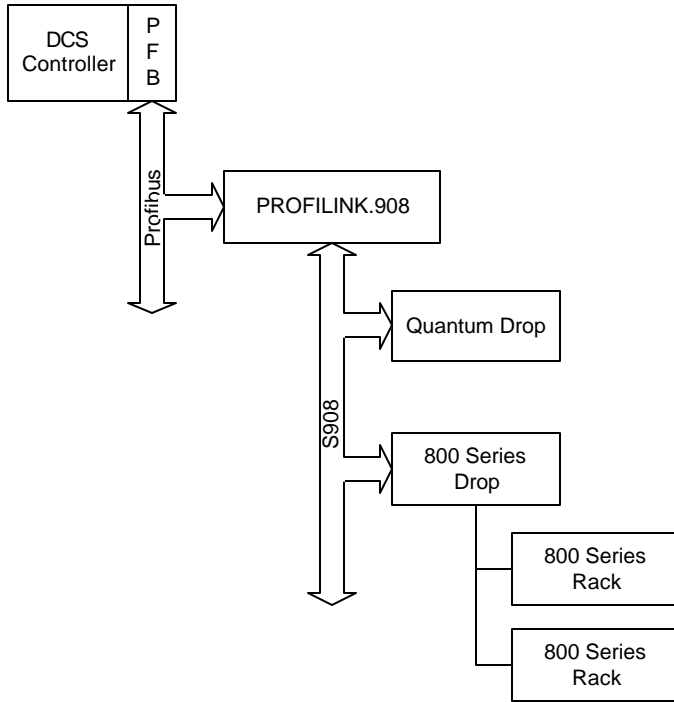
Figure 4 Typical Non-redundant Installation
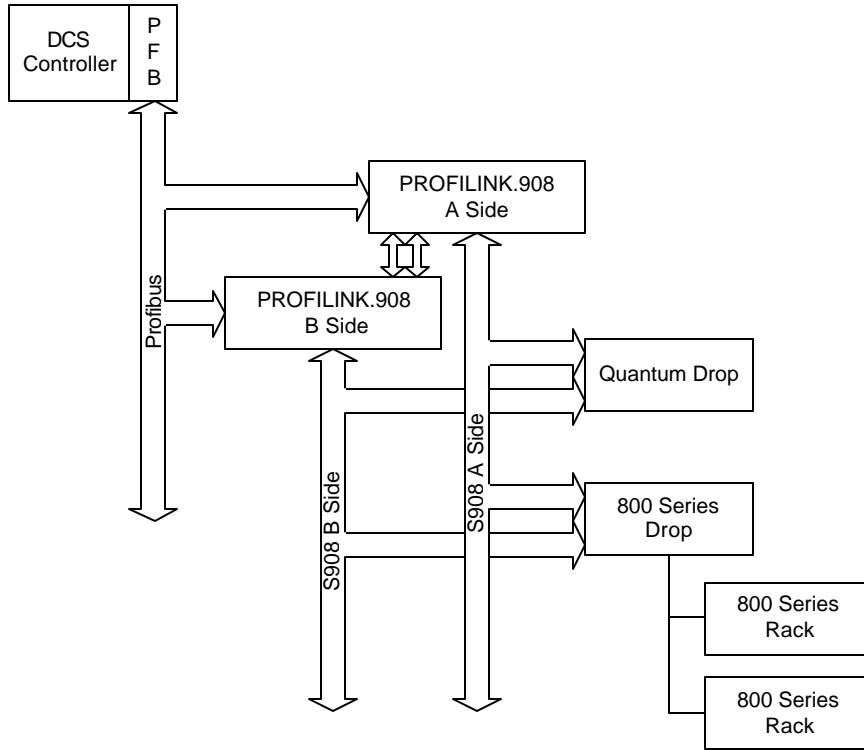
Redundant/Simplex Profibus

Figure 5 Typical Redundant Installation with Simplex Profibus Cabling
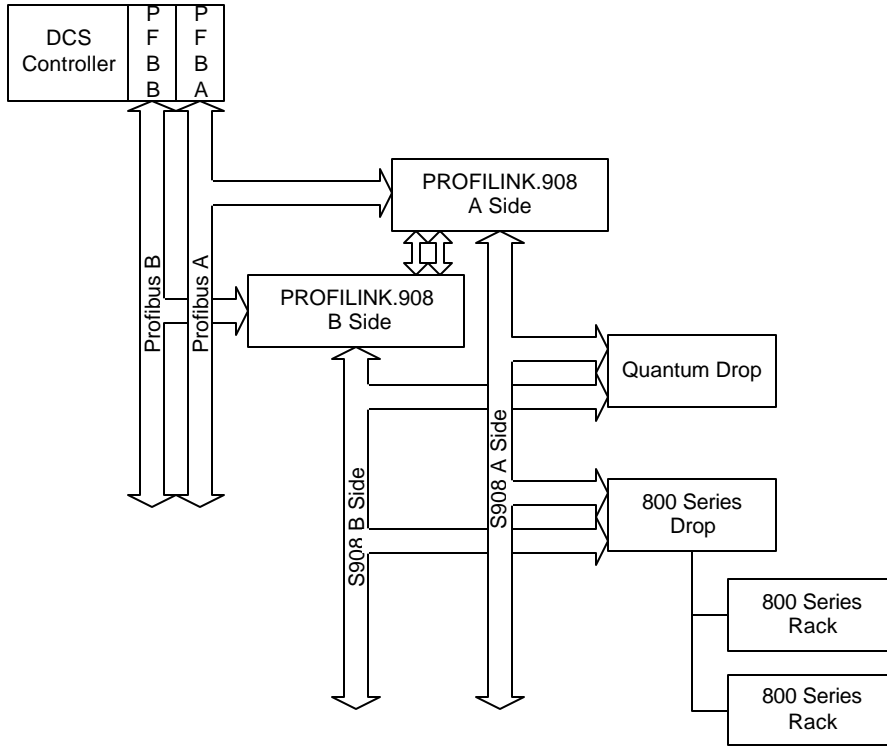
Redundant/Duplex Profibus

Figure 6 Typical Redundant Installation with Duplex Profibus Cabling

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