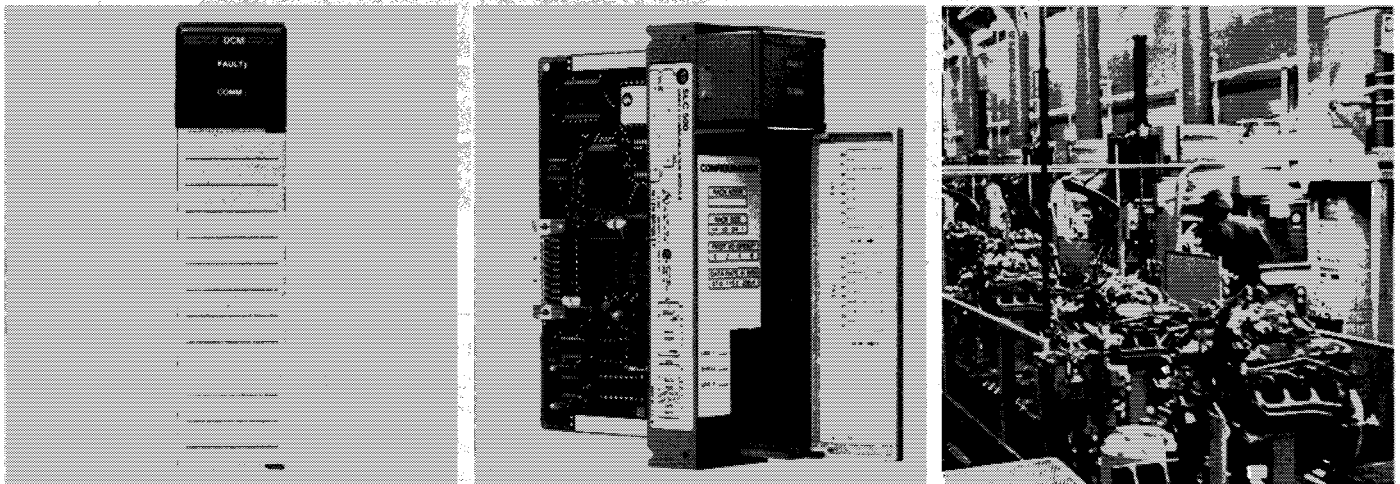




Direct Communication Module (Catalog Number 1747-DCM)

Product Data



Supports communication between SLC™ and PLC® controllers over the Allen-Bradley remote I/O (RIO) link. The DCM module greatly expands your present SLC system's control potential by allowing for data exchange between its 1746 discrete and analog I/O and all compatible Allen-Bradley scanners and sub scanners. In certain applications, up to 32 DCM modules can be daisy-chained on the RIO link with the furthest being located up to 3048 meters (10,000 feet) from the scanner. This feature lets you cluster portions of your I/O while still permitting data retrieval/exchange from distant locations on the plant floor.

Provides 1/4 rack, 1/2 rack, 3/4 rack, and full logical rack addressing. This enables a single DCM module to interface, via the SLC program, to 1746 I/O data with the remote I/O scanner while using the most efficient number of words in the I/O image table.

Installs easily in a single slot of an SLC chassis and connects to the RIO link via a single twisted pair RIO cable. Using the DCM module allows you to easily achieve expanded system control with minimal wiring and labor expense.

Features and Benefits

Provides full compatibility with the PLC-2®, PLC-3®, and PLC-5® family of controllers. This allows for a broad range of connectivity between the PLC and SLC families for distributed processing.

Supports baud rates of 57.6K baud, 115.2K baud, or 230.4K baud. This DIP switch selectable feature provides for noise immunity without signal degradation over a variation of cable distances: from 762 meters (2,500 feet) at 230.4K baud to 3048 meters (10,000 feet) at 57.6K baud.

Provides front panel Fault and COMM LED indicators. These diagnostic features provide help in troubleshooting the DCM module for internal fault detection and system communication errors.

Uses easy-to-use ladder logic programming in the PLC and SLC to transfer data via the DCM module. Both the PLC and the SLC can transfer data via the DCM module automatically with each I/O scan. The DCM module serves as a common memory site for PLC and SLC I/O addresses. The DCM module does not scan I/O in its SLC chassis, but the local SLC processor can move I/O data between the DCM module and the processor's I/O image in ladder logic.

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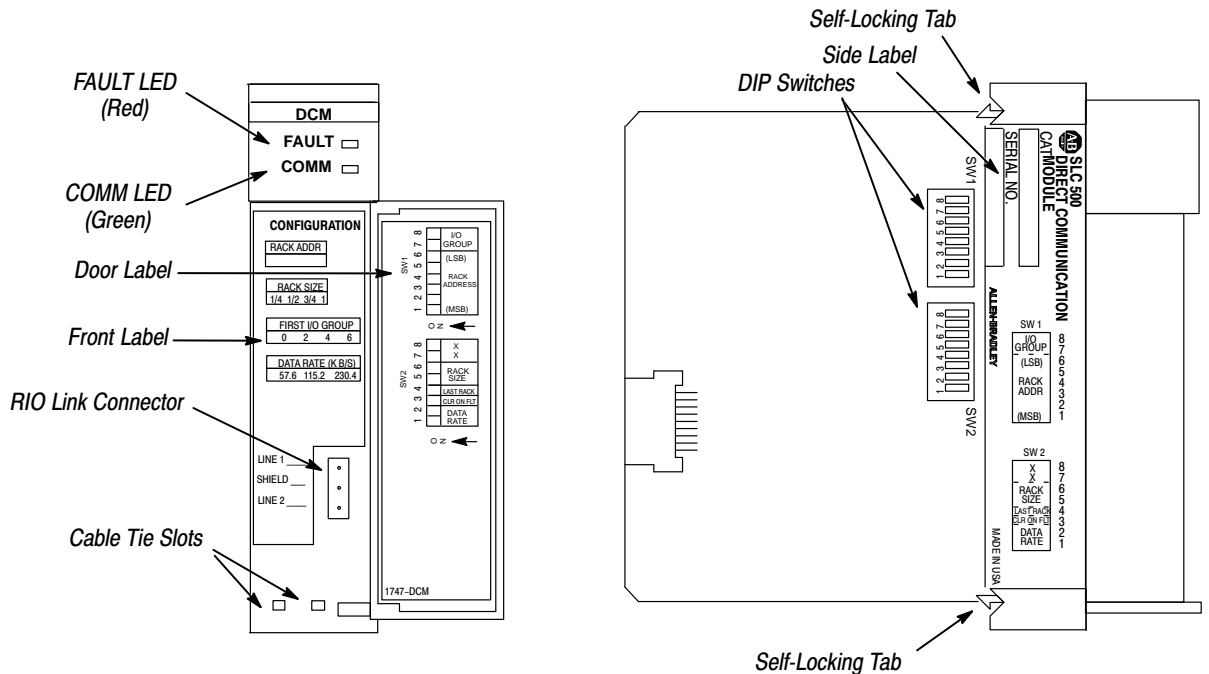
Hardware Overview

The Direct Communication Module, Catalog Number 1747-DCM, is used to connect an SLC 500 Fixed Programmable Controller with expansion chassis or any SLC 500 Modular Programmable Controller to a supervisory Allen-Bradley Programmable Controller via the RIO link, thereby providing a distributed processing system. The DCM module occupies one slot in any SLC 500 chassis.

Hardware features significant to installing, configuring, and troubleshooting the DCM module are described in the table and located in the following illustration.

Hardware Features

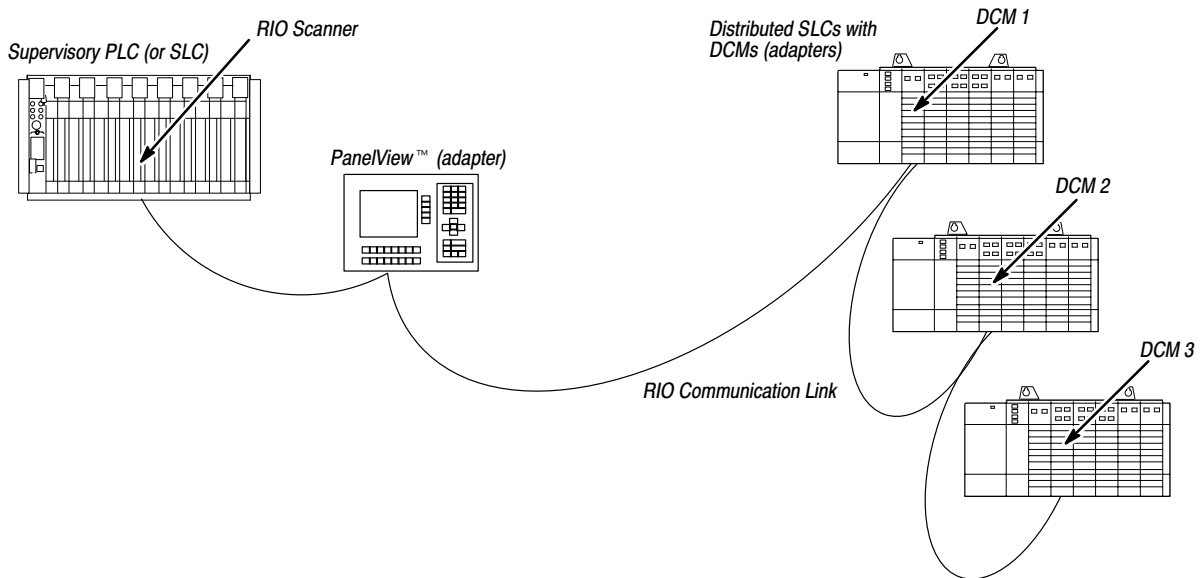
Hardware	Function
FAULT LED	Displays operating status
COMM LED	Displays communication status
Front, Side and Door Labels	Provide module configuration information
RIO Link Connector	Provides physical connection to RIO network
Cable Tie Slots	Secure and route wiring from the module
DIP Switches	Establish configuration parameters for the module
Self-Locking Tabs	Secure module in chassis slot



System Overview

The Direct Communication Module is an SLC 500 family remote I/O (RIO) adapter. It allows supervisory processors, such as PLC-5s, and distributed SLC processors residing on an Allen-Bradley RIO communication link to transfer data between each other. The DCM module appears as an RIO adapter to:

- a PLC processor with integral RIO scanner on the RIO communication link
- an RIO scanner, Catalog Number 1771-SN or 1747-SN, on the RIO communication link



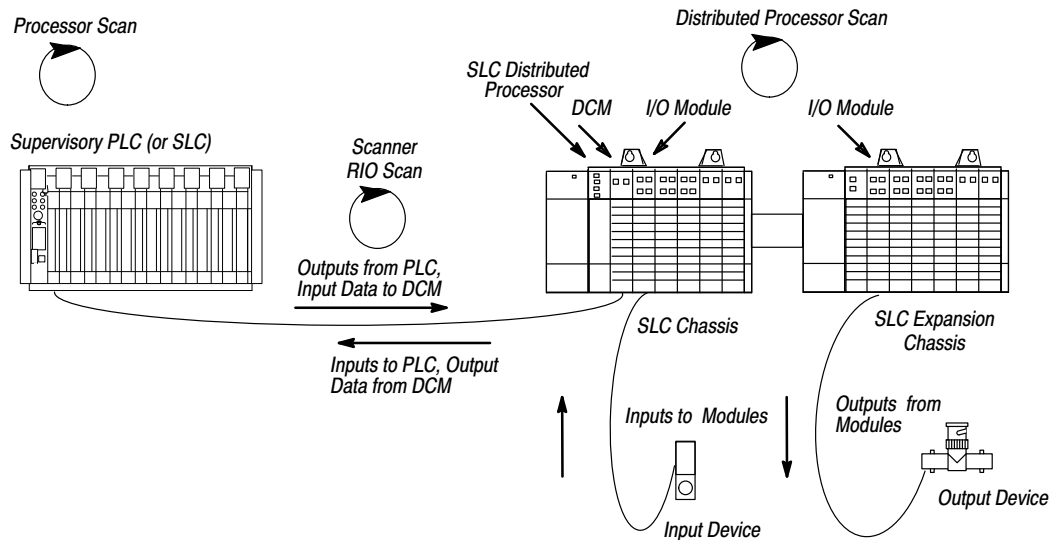
DCM modules are connected in a daisy-chain configuration using Belden 9463 cable.

The number of DCM modules a scanner can supervise depends on the scanner's physical and logical specifications. All RIO scanners have defined physical and logical specifications. *Physical specifications* are the maximum number of adapters that can be connected to the scanner. *Logical specifications* are the maximum number of logical racks the scanner can address, the way logical racks can be assigned, and the ability of the scanner to perform data transfers.

The DCM module communicates with supervisory PLC or SLC controllers through RIO scanners, as if they were addressing a logical rack. However, the DCM module does not scan the I/O in its local I/O chassis, rather it passes the supervisory data to the distributed SLC processor.

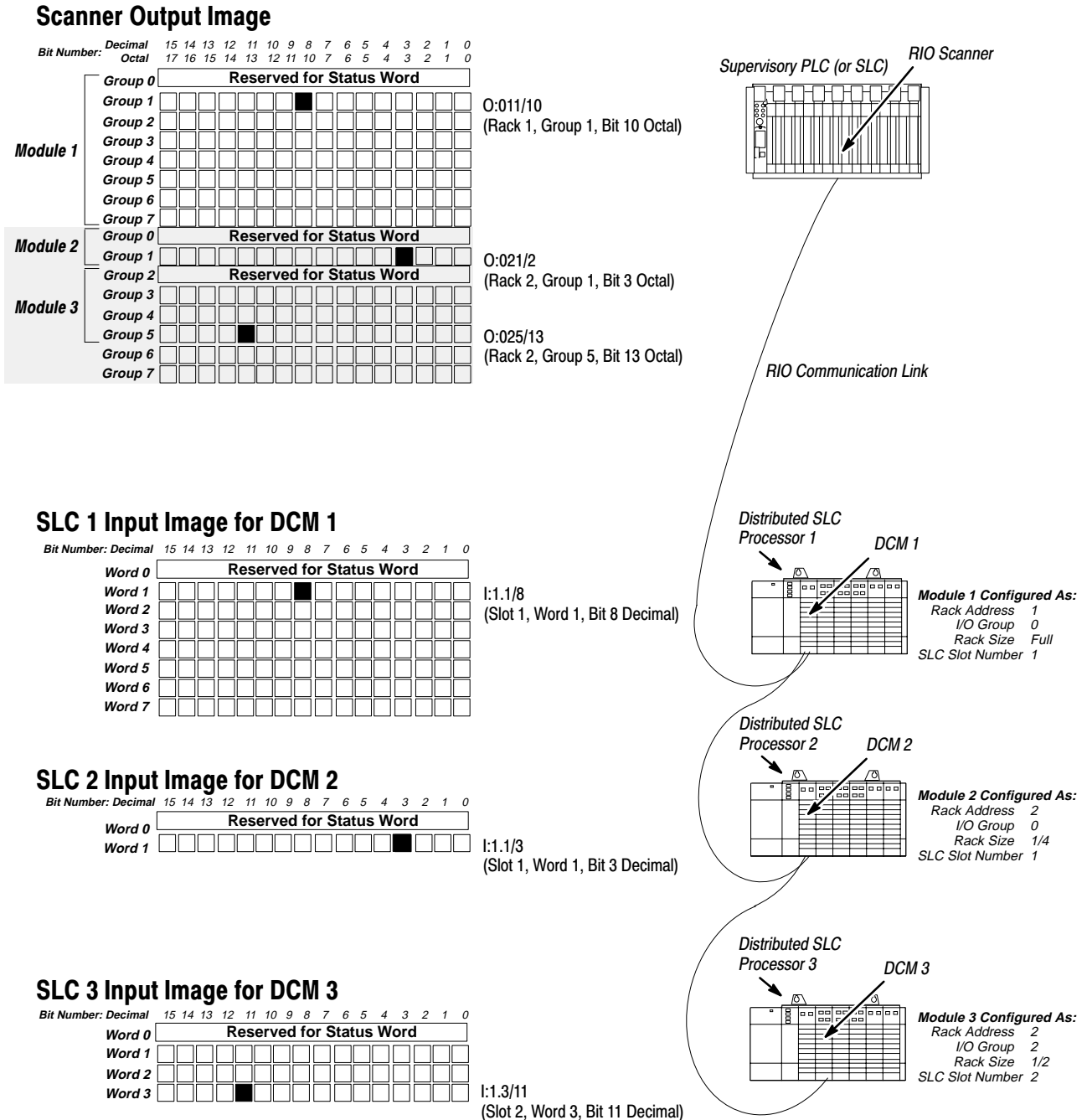
In the DCM module, outputs from the SLC output image table are inputs to the supervisory processor input image table. Likewise, outputs from the supervisory processor output image table are inputs to the SLC input image table.

The diagram that follows depicts the communications flow between an RIO scanner and the DCM module.



System Operation

The illustration below shows how a PLC output image is mapped into the image of multiple SLC processors through the DCM module. The DCM module, as a common memory site for both the PLC and SLC, has two addresses; one for the PLC and one for the SLC. The PLC address is the DCM module logical rack address as set by SW1, 1–6. The SLC address is determined by the physical slot in the modular SLC chassis or fixed SLC expansion chassis where the DCM module is installed.



Compatible Modules

Scanners

The following table shows you which scanners can be used with the supervisory processor in your system application. Refer to the appropriate scanner manual for details concerning physical and logical specifications.

Compatible Scanners

Catalog Number	Device	Extended Node Capability	Comments
1747-SN	SLC Remote I/O Scanner	Yes	Series A does not have block transfer capability.
1771-SN	Sub I/O Scanner for Mini-PLC-2 and PLC-5 families	No	Revision D or later
1772-SD, -SD2	Remote Scanner/Distribution Panel for PLC-2 family	Yes (except with SD-2 Series A)	SD-2 scanner must be Revision 3 or later.
1775-S4A, -S4B, -S5	I/O Scanner Programmer Interface Module for PLC-3 family	Only available with S5 scanner	
1775-SR, -SR5	Remote Scanner Distribution Panel for PLC-3/10 family	Only available with SR5 scanner	
1785-L11B	PLC-5/11™ (in scanner mode)	Yes	
1785-LT/x	PLC-5/15™ (in scanner mode)	Yes	PLC-5/15 Series B Revision H or later have partial rack addressing. Earlier versions are limited to 3 logical devices.
1785-L20B	PLC-5/20™ (in scanner mode)	Yes	
1785-LT2	PLC-5/25™ (in scanner mode)	Yes	PLC-5/25 Series A Revision D or later have partial rack addressing. Earlier versions are limited to 7 logical devices.
1785-L30x	PLC-5/30™ (in scanner mode)	Yes	
1785-L40x	PLC-5/40™ (in scanner mode)	Yes	
1785-L60x	PLC-5/60™ (in scanner mode)	Yes	
5250-RS	Remote Scanner for PLC-5/250™	Yes	
6008-SI	IBM® PC I/O Scanner Module	Yes	
6008-SV	VMEbus I/O Scanner Module	Yes	
6008-SQH1, -SQH2	Q-bus I/O Scanner Module	No	

Adapters

The DCM module can physically reside on the RIO link with any other adapter. The following table lists the adapters available for use with an RIO link.

Compatible Adapters

Catalog Number	Device	Extended Node Capability	Comments
1785-LT/x	PLC-5/15	Yes	In adapter mode
1785-LT2	PLC-5/25	Yes	In adapter mode
1785-LT3	PLC-5/12	Yes	In adapter mode
1785-L30x	PLC-5/30	Yes	In adapter mode
1785-L40x	PLC-5/40	Yes	In adapter mode
1785-L60x	PLC-5/60	Yes	In adapter mode
1771-ASC	Remote I/O Adapter Module	No	
1771-ASB	Remote I/O Adapter Module	Series B and C only	Series A, B, and C
1771-AM1	1-Slot I/O Chassis with Integral Power Supply and Adapter	Yes	
1771-AM2	2-Slot I/O Chassis with Integral Power Supply and Adapter	Yes	
1784-F30D	Plant Floor Terminal Remote I/O Expansion Module	Yes	
1771-RIO	Remote I/O Interface Module	No	
1771-JAB	Single Point I/O Adapter Module	Yes	
1771-DCM	Direct Communication Module	No	
1778-ASB	Remote I/O Adapter Module	Yes	
1747-ASB	Remote I/O Adapter Module	Yes	
2706-xxxx	DL40 Dataliner™	Yes	Must be catalog number 2706-ExxxxxB1.
2705-xxx	RediPANEL™	Yes	
2711-xx	PanelView Terminal	Yes	
1336-RIO	Remote I/O Adapter for 1336 AC Industrial Drives	Yes	
1395-NA	Remote I/O Adapter for 1395 DC Industrial Drives	Yes	

Support Services

In today's competitive environment, when you buy any product, you expect that product to meet your needs. You also expect the manufacturer of that product to back it up with the kind of customer service and product support that will prove you made a wise purchase.

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Specifications

Electrical Specifications

Backplane Current Consumption	360mA at 5V
	0mA at 24V

Environmental Specifications

Operating Temperature	0°C to 60°C (32°F to 140°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	5% to 95% noncondensing
Noise Immunity	NEMA Standard ICS 2-230
Agency Certification (when product or packaging is marked)	<ul style="list-style-type: none"> • CSA certified • CSA Class I, Division 2 Groups A, B, C, D certified • UL listed • CE marked for all applicable directives

Network Specifications

	Baud Rate	Maximum Cable Distance (Belden 9463)	Resistor Size
Using Extended Node Capability	57.6K baud	10,000 feet at 57.6K baud	82Ω 1/2 Watt
	115.2K baud	5,000 feet at 115.2K baud	
	230.4K baud	2,500 feet at 230.4K baud	
Not Using Extended Node Capability	57.6K baud	3048 meters (10,000 feet)	150Ω 1/2 Watt
	115.2K baud	1524 meters (5,000 feet)	
	230.4K baud	762 meters (2,500 feet)	82Ω 1/2 Watt

Notes

Notes

PLC, PLC-2, PLC-3, and PLC-5 are registered trademarks of Allen-Bradley Company, Inc.
PLC-5/11, PLC-5/15, PLC-5/20, PLC-5/25, PLC-5/30, PLC-5/40, PLC-5/60, PLC-5/250, SLC,
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