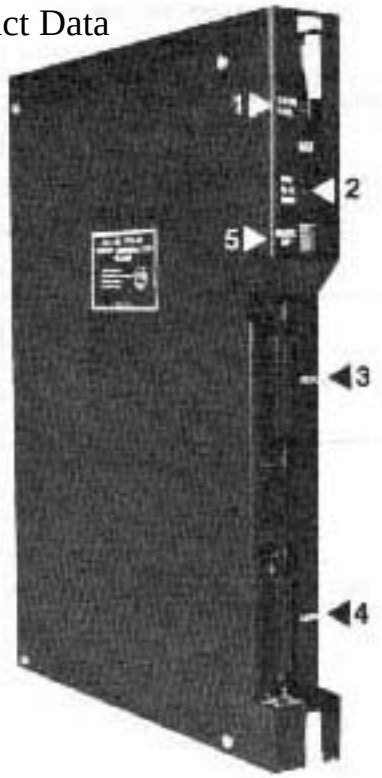
# Allen-Bradley
# Memory Communication Module

(Cat. No. 1775-MX)

Product Data




1. PASS and FAIL Indicators
2. Status Indicators
3. Receive Port
4. Transmit Port
5. Backup Connector

## Description

Allen-Bradley's Memory Communication Module quickly transfers data table information from the primary to the backup processor in a PLC-3 backup system. In a PLC-3 backup system, you need to insert memory communication modules in both the primary and backup PLC-3 processor chassis.

The communication between primary and backup memory communication modules is valuable for critical applications in which large amounts of data must transfer from the primary PLC-3 processor to the backup PLC-3 processor. In these applications, memory communication modules provide high speed data transfer which reduces the possibility of unexpected operation at switchover. The benefits, features, and functions for the module are outlined in table A. You can find detailed application information on this module in the PLC-3 Programmable Controller Backup Concepts Manual (publication 1775-803).

**Table A**
**Benefits, Features, and Functions of Using Memory Communication Module in a PLC-3 Backup System**

| Benefits | Features | Functions |
|---|---|---|
| Enhance PLC-3 backup system | Receive/Transmit parallel data transfer ports | High speed receiving and sending of data from the primary to the backup PLC-3 processor |
| Control backup operation through message instruction commands in your ladder diagram program<br>Control backup operation through memory communication selections in the PLC-3 LIST function | Multi-communication methods | Program control<br>LIST control |
| Verify ladder diagram program in the backup PLC-3 processor | Program compare | Compares ladder diagram program in the backup PLC-3 processor to the ladder diagram program in the primary PLC-3 processor on a word by word basis |
| Control the on-line editing capability for the industrial terminal | Lock system | Prevents unauthorized users from editing the ladder diagram program in either PLC-3 processor via the Industrial Terminal (cat. no 1770-T4) |
| Protect the backup PLC-3 processor from controlling outputs during on-line editing | Disable outputs | Disables the backup PLC-3 processor from taking control of outputs if the primary PLC-3 processor should fault |
| Rapid update of memory contents | Memory download | Transfers entire physical image of primary PLC-3 processor to the backup PLC-3 processor |
| Ability to transfer control to the backup PLC-3 processor when the ladder diagram program detects specific conditions | Transfer control command | Transfers primary operation to the backup PLC-3 processor |
| High speed update of data table contents | Data Table transfers | Executes a single or continuous data table transfer from the primary to the backup PLC-3 processor |
| Update contents of user selected files | File transfers | Executes a single or continuous data transfer of user selected data table files from the primary to the backup PLC-3 processor |
| Stop memory communication operation | Stop transfers | Stop any continuous data transfer at the completion of a data table transfer or at the completion of the current file list transfer |
| Efficient floor planning | Long distance cabling | Connect the memory communication module in the primary PLC-3 processor up to 30 cable feet from the memory communication module in the backup PLC-3 processor |
| Easy troubleshooting | Status indicators | Check the communication status of the memory communication system |

## Transferring Data

You can transfer data with memory communication modules in your PLC-3 backup system through the LIST function and/or by using the following commands with the message instruction (MSG) in your ladder diagram program:

| Command Name | Description |
|---|---|
| LIST Control | Disables message instruction control over the memory communication module and enables selections made in LIST to control module operations |
| Program Control | Disables LIST control over the memory communication module and enables data transfer commands in message instructions to control module |
| Start Data | Initiates continuous data table transfers |
| Start $ < file list > | Initiates continuous file transfers for selected files |
| Stop | Stops any continuous data table or file transfer |
| Transfer Control | Transfers control of the PLC-3 system to the backup PLC-3 processor |
| Transfer Data | Initiates one complete data table transfer |
| Transfer $ < file list > | Initiates one complete file transfer for selected files |
| Download | Initiates a memory download |
| Enable Compare | Initiates program comparison function |
| Disable Compare | Disables program comparison function |
| Lock | Sets protection against editing of your ladder diagram program |
| Unlock | Releases protection against editing of your ladder diagram program |
| Disable Outputs | Disables the outputs of the backup PLC-3 processor |
| Enable Outputs | Enables the outputs of the backup PLC-3 processor |

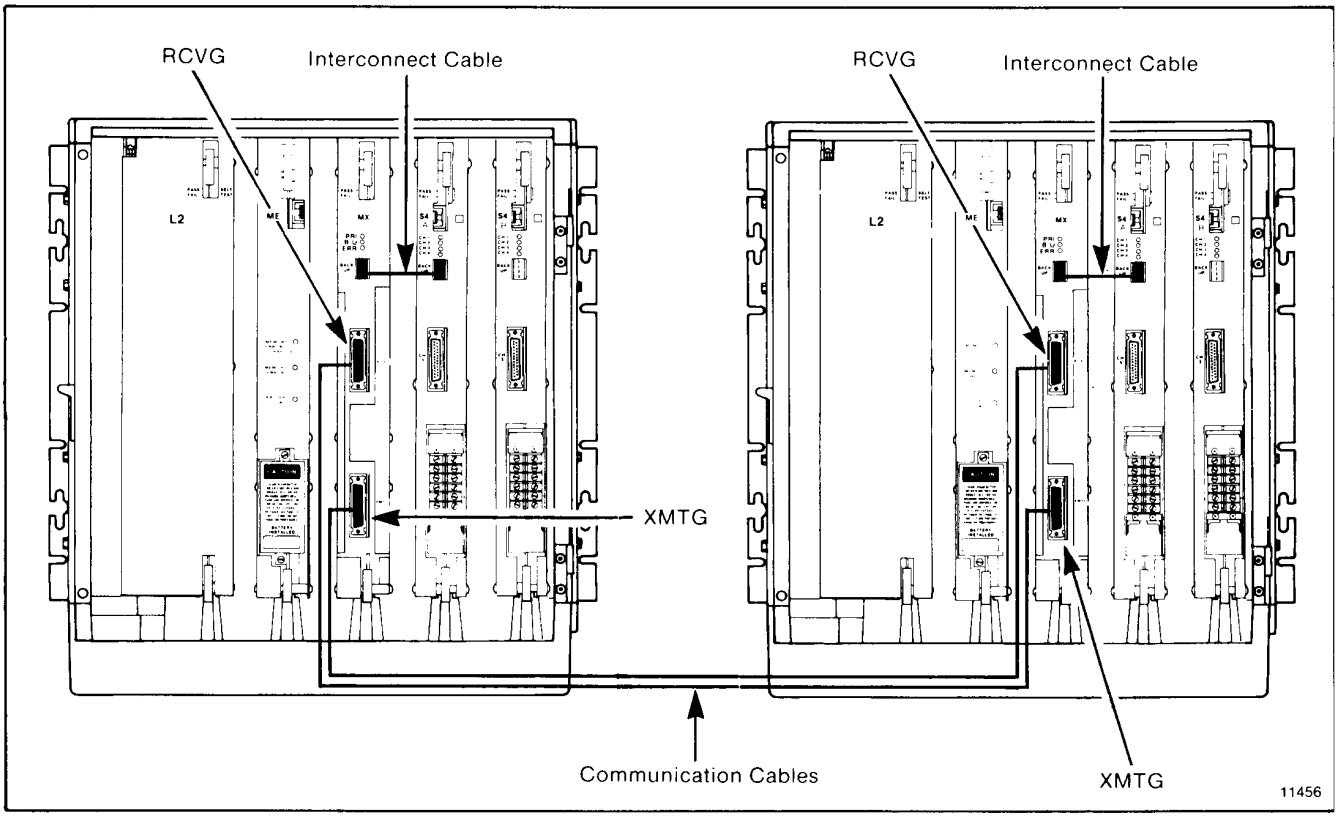
## Installing Memory Communication Modules

When you install memory communication modules into the PLC3 backup system, you need the following components:

- Two memory communication modules. One module for the primary PLC-3 processor and one module for the backup PLC3 processor.
- One Memory Communication Cable Assembly (cat. no. 1775-CM). This assembly includes:
  - Two 30-foot communication cables
  - Two 3-foot interconnect cables

Figure 1 shows a typical configuration for the memory communication module in a PLC-3 backup system.

**Figure 1**
**Typical Installation of Memory Communication Cable Assembly**




## Indicators

The five LED indicators on the front edge of the memory communication module have the following meanings:

## PASS and Fail Indicators

| PASS | FAIL | Meaning |
|---|---|---|
| On | Off | Normal operation |
| Off | On | Module fault |
| On | On | Power-up or system reset |

## PRIMARY And BACKUP Indicators

| PRIMARY | BACKUP | Meaning |
|---|---|---|
| On | Off | Processor in primary mode |
| Off | On | Processor in backup mode |
| Off | Off | Processor faulted |

## ERR Indicator

The ERR indicator is on when a communication error is detected between the two memory communication modules. It remains on until power is turned off or until the communication error bit in the data table minor fault word is reset. This bit can be reset by the ladder diagram program.

## Connectors

A connector and two communication ports are located on the front edge of the memory communication module. The connector has the following function:

- **Backup Connector**—Provides communication with the 1775-S4A scanner module within the same PLC-3 system that has its thumbwheel switch set to 1.

The two communication ports located below the backup connector move information from the primary memory communication module to the backup memory communication module. These ports have the following functions:

- **Receive Port** —Receives information from the primary PLC3 processor.
- **Transmit Port** — Sends information to the backup PLC-3

## Specifications

| | |
|---|---|
| **Function**<br>▪ High speed transfer of data table and ladder diagram program information from primary to backup PLC-3 processor.<br>**Location**<br>▪ Single slot in a PLC-3 primary processor<br>▪ Single slot in a PLC-3 backup processor<br>**Communication Rates**<br>▪ 10ms/1K words for continuous file and data table transfers | **Backplane Current Requirements**<br>▪ 3.5A max at +5V DC per module<br>**Environmental Conditions**<br>▪ Operational Temperature: 0° to 60°C (32° to 140°F)<br>▪ Storage Temperature: -40° to 85°C (-40° to 185°F)<br>▪ Relative Humidity: 5% to 95% (without condensation) |

ALLEN-BRADLEY
A ROCKWELL INTERNATIONAL COMPANY

As a subsidiary of Rockwell International, one of the world's largest technology companies — Allen-Bradley meets today's challenges of industrial automation with over 85 years of practical plant-floor experience. More than 11,000 employees throughout the world design, manufacture and apply a wide range of control and automation products and supporting services to help our customers continuously improve quality, productivity and time to market. These products and services not only control individual machines but integrate the manufacturing process, while providing access to vital plant floor data that can be used to support decision-making throughout the enterprise.

With offices in major cities worldwide


**WORLD HEADQUARTERS**
**Allen-Bradley**
**1201 South Second Street**
**Milwaukee, WI 53204 USA**
**Tel: (1) 414 382-2000**
**Telex: 43 11 016**
**FAX: (1) 414 382-4444**

**EUROPE/MIDDLE EAST/AFRICA HEADQUARTERS**
Allen-Bradley Europe B.V.
Amsterdamseweg 15
1422 AC Uithoorn
The Netherlands
Tel: (31) 2975/43500
Telex: (844) 18042
FAX: (31) 2975/60222

**ASIA/PACIFIC HEADQUARTERS**
Allen-Bradley (Hong Kong) Limited
Room 1006, Block B, Sea View Estate
28 Watson Road
Hong Kong
Tel: (852) 887-4788
Telex: (780) 64347
FAX: (852) 510-9436

**CANADA HEADQUARTERS**
Allen-Bradley Canada Limited
135 Dundas Street
Cambridge, Ontario N1R 5X1
Canada
Tel: (1) 519 623-1810
FAX: (1) 519 623-8930

**LATIN AMERICA HEADQUARTERS**
Allen-Bradley
1201 South Second Street
Milwaukee, WI 53204 USA
Tel: (1) 414 382-2000
Telex: 43 11 016
FAX: (1) 414 382-2400



Publication 1775–2.12 — April, 1984
Supersedes Publication1775–919 —April, 1984

PN 955093-57