3.2 RX7i Memory Xchange Module User Features

3.2.1 CMX016 LEDs

The general purpose RX7i CMX module has four LEDs and an optical transceiver.

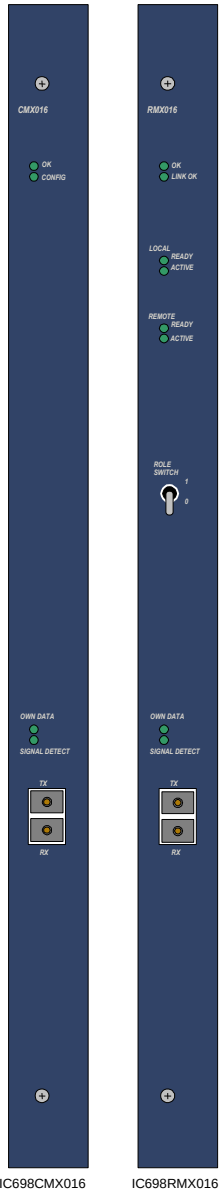
LED Label	Description
OK	ON indicates the module and CPU are functioning properly.
CONFIG[3]	Indicates the module is configured.
OWN DATA	ON indicates the module has received its own data packet from the network at least once.
SIGNAL DETECT	ON indicates the receiver is detecting a fiber optic signal.

3.2.2 RMX016 LEDs

The RX7i RMX module has eight LEDs, a role switch and an optical transceiver.

LED Label	Description
OK	ON indicates the module and CPU are functioning properly.
LINK OK	When not used as a redundancy link, ON indicates the module is configured. When used as a redundancy link, ON indicates the link is functioning properly.
LOCAL READY	ON indicates the local unit is ready.
LOCAL ACTIVE	ON indicates the local unit is active.
REMOTE READY	ON indicates the remote unit is ready.
REMOTE ACTIVE	ON indicates the remote unit is active.
OWN DATA	ON indicates the module has received its own data packet from the network at least once.
SIGNAL DETECT	ON indicates the receiver is detecting a fiber optic signal.

Figure 15: CMX016 & RMX016 Features



IC698CMX016 IC698RMX016

3.2.3 Optical Transceiver

The optical transceiver has two “LC” type fiber optic ports. The port labeled “TX” is the transmitter and the port labeled “RX” is the receiver. For details on cables, refer to Section 3.4.3, Fiber-Optic Cables.

3.3.2 RX7i Memory Xchange Modules

Equipment Required

Make sure you have the items listed below before you begin.

- A PACSystems RX7i CPU with release 2.00 or higher firmware
- A PACSystems RX7i CPU rack with power supply.
- Programming software: PAC Machine Edition – Logic Developer, PAC Machine Edition version 4.5 or later (and a compatible computer running Windows® Operating System)).
- Cables. For details, refer to Section 3.4.3, Fiber-Optic Cables.

Note: *RX7i systems that include one or more Memory Xchange modules must be installed in a metal enclosure with conduit or equivalent to meet radiated emission standards and maintain CE Mark compliance. For details, refer to appendix A of the PACSystems RX7i Installation Manual, GFK-2223.*

Installing the Memory Xchange Module in an RX7i Rack

⚠ WARNING

Do not insert or remove RX7i modules with power applied. This could cause the CPU to stop, damage the module, or result in personal injury.

Memory Xchange modules must only be installed in the main (Rack 0) RX7i rack. RX7i supports a maximum of four Memory Xchange modules per main rack.

Note: *It is recommended that the RMX modules be installed in slots 3 and 4 of the main rack. This gives VME interrupt request priority to the RMX modules. Although this configuration is recommended, it is not required that the RMX modules be in slots 3 and 4.*

1. Make sure rack power is off.
2. Slide the module into the slot for which it was configured in the system.
3. Press the board firmly in place, but do not force the board. Tighten the screws on the top and bottom of the faceplate.
4. Connect the fiber optic cables to the TX and RX connectors.
5. Route the fiber optic cable connected to TX to the RX connector of the next module in the ring. Connect the fiber optic cable from that board's TX to the RX connector of the next module. Repeat this step until the last node in the ring routes its TX to the RX of the first node.
6. Turn on power to the RX7i rack.

Note: *The Memory Xchange module initially powers up in an unconfigured state with its optical transmitter disabled. The module cannot operate on a network until the RX7i CPU has sent a hardware configuration to the module. For additional information, refer to Section 3.5, Hardware Configuration.*

3.5.1 Configuring a Memory Xchange Module

For details on configuring a PACSystems controller using the programming software, refer to the software online help. To configure a Memory Xchange module, perform the following steps:

1. In the Project tab of the Navigator, expand the PACSystems Target, the hardware configuration, and the main rack (Rack 0).
2. Right click the slot in which the module will be installed and choose Add Module. The Module Catalog opens.
3. Click the Communications tab, select the Memory Xchange module to be configured and click OK. The module is added to the rack configuration and the module's parameters are displayed in the Parameter Editor window.
4. To edit a parameter value, click the desired tab, then click in the appropriate Values field. For details on these fields, refer to Section 3.5, Hardware Configuration.
5. Save the configuration and download (store) it to the CPU so these settings can take effect.

Note: *For details on the effects of storing a hardware configuration containing changes to a Memory Xchange module, refer to Section 4.5.1,Special Considerations for Stores of Configuration.*

3.5.2 Configuration Parameters

Note: *Additional user logic is required to configure and acknowledge module interrupts from the Memory Xchange module. Refer to Section 5.2.2, Interrupt Handling Logic, for additional information.*

Redundant Link

(Available only for an RMX, and only when a redundancy CPU is configured.)

Choices:

- **Disabled**: The RMX is not used as a redundancy link. This RMX module is used just like the general purpose CMX module. All the remaining parameters on this tab are available.
- **Enabled**: The RMX is used as a redundancy link and cannot be used as a general-purpose reflective memory module. All the remaining parameters on this tab are unavailable, and the Interrupt parameter is set to Disabled.

Default:

- Enabled when there are fewer than two RMX modules already set as Redundant Link in this target.
- Disabled when there are already two RMX modules set as Redundant Link in this target.

Note: *The Node ID, Redundant Transfer Mode, Rogue Master, and Network Memory Offset parameters are available for the RMX only when Redundant Link is set to Disabled.*

Node ID

The unique number identifying this node in the reflective memory network.

Valid range: 0 through 255.

Default: 0.

Redundant Transfer Mode

Determines whether the packets are transferred once or twice.

Note: All nodes on the network must use the same Redundant Transfer mode setting.

Choices:

- **Disabled**: Each packet is transferred once. This ensures the greatest effective network transfer rate but increases the risk of data being dropped from the network.
- **Enabled**: Each packet is transferred twice. This greatly reduces the risk of data being dropped from the network, but also reduces the effective network transfer rate. For details, refer to Section 3.2.6, Redundant Transfer Mode Operation.

Default: Disabled.

Rogue Master

For details on Rogue Master operation, refer to Section 3.2.8, Rogue Packet Detection and Removal.

⚠CAUTION

Do not configure two nodes in the network as the same rogue master; otherwise, one of the two will erroneously remove packets before the data has been sent to all nodes in the ring.

Choices:

- **Disabled**: The module will not detect rogue packets.
- **Rogue Master 0 Enabled**: This Memory Xchange module is set as Rogue Master 0.
- **Rogue Master 1 Enabled**: This Memory Xchange module is set as Rogue Master 1.

Default: Disabled.

Network Memory Offset (MB)

Offset added to the address of network packets initiated by local bus writes to the reflective memory and subtracted from incoming network packets before applying them to the local reflective memory. For details on memory offset operation, refer to Section 3.2.7, Network Memory Offset.

Valid range: 0 through 240 MB, in increments of 16 MB.

Default: 0.