

I. M9 DAC MAIN BOARD EPROM UPGRADE

You will receive one EPROM (chip with a M-9 DAC label) for each unit to be upgraded.

The materials you will need to supply are:

Phillips-head screwdriver
IC DIP extractor or a pair of curved needle-nose pliers

1. **IMPORTANT:** Remove power from the unit by depressing the power switch on the rear of the unit to OFF. Also remove power cord from the AC outlet.
2. Remove the cover of the unit by unscrewing the 4 screws located on the top panel with the Phillips-head screwdriver
3. With the front of the unit (LED side) facing toward you, locate socket U2 on the main vertical PC board that is parallel with the front panel. The main PC board is also identified as the board to which all the peripheral and host modules are attached. Refer to the (Mechanical Layout) and locate socket U2 on the upper left hand corner of the PC board.
4. Note carefully how the existing EPROMs, labeled M9 DAC F0.6X, are installed in the sockets. Remove the existing EPROM from sockets U2 with IC extractor or needle-nose pliers. Gradually loosen each side of the chip, alternating pliers from side to side. Do not bend the pins on the EPROM. Pull the loosened EPROM all the way out.
5. Install the new EPROM into socket U2.
 - a. The EPROM should be placed to the rear of the socket. The vacant pin receptacles of the socket are adjacent to the notch on the socket. Insure that the notch of the EPROM and the notch on the socket face the same direction.
 - b. Install the new M-9 DAC F0.XX EPROM into socket U (see the label on the EPROM).
 - c. Be careful not to bend any of the pins. Insure that none of the pins miss the receptacles of the sockets.
6. Apply power to the unit. The upgrade is now complete. Before you begin operations, check the configuration status to make certain it matches your application.

M9 DAC MAIN BOARD MECHANICAL LAYOUT

II. V72/V72TP EPROM UPGRADE

You will receive two EPROMs (chips with label A & B) for each module to be upgraded.

The materials you will need to supply are:

- Phillips-head screwdriver IC DIP extractor or a pair of curved needle-nose pliers
1. **IMPORTANT:** Remove power from the unit by depressing the power switch on the unit to OFF. Also remove power cord from the AC outlet.
 2. Remove the appropriate module by loosening the 2 straight slot screws that attach the connector board I/O module to the chassis and then pulling the module out.
 3. Refer to the (Mechanical Layout) and locate sockets U7 and U6.
 4. Note carefully how the existing EPROMs, labeled V72 F0.XX, are installed in the sockets. Remove the existing EPROMs from sockets U7 and U6 with IC extractor or needle-nose pliers. Gradually loosen each side of the chip, alternating pliers from side to side. Do not bend the pins on the EPROMs. Pull the loosened EPROM all the way out.
 5. Install the new EPROMs into sockets U7 and U6.
 - a. The EPROMs should be placed to the rear of the sockets. The vacant pin receptacles of the socket are adjacent to the notch on the socket. Insure that the notch of the EPROM and the notch on the socket face the same direction.
 - b. Install the "B" EPROM into socket U7(see the label on the EPROM). The "B" EPROM can be identified with either a V72-B or V72TP-B.
 - c. Install the "A" EPROM into socket U6(see the label on the EPROM). The "A" EPROM can be identified with either a V72-A or V72TP-A.
 - d. Be careful not to bend any of the pins. Insure that none of the pins miss the receptacles of the sockets.
 6. Re-install the V72 and apply power to the unit. The upgrade is now complete. Before you begin operations, check the configuration status to make certain it matches your application.

III. MODULE DIAGNOSTICS

The V72 provides two diagnostic modes to the user. The first is an LED-based diagnostic, where the module uses its LEDs to convey information about hardware or configuration errors which will prevent network access. The second is an interactive diagnostic, which provides operational information which may help a user or Bay Tech technical support personnel to diagnose the source of a problem.

The V72 has two LED indicators on the rear panel and four LED indicators on the front panel of the base unit corresponding to the module slot where the V72 is installed (i.e., Module 1, Module 2, etc.). The two LEDs on the module rear panel are marked as LINK and RX/TX. The green LINK LED illuminates if the V72 has a good 10BASE-T connection. Failure of this LED to illuminate indicates a physical connection problem only if twisted pair cabling is being used. The red RX/TX LED indicates network activity.

The four LED indicators on the front panel of the base unit are used for diagnostics and operation.

When the M-Series DAC unit is reset or powered up, the LEDs on the base unit will go through a scanning sequence beginning with Module 1 Port 1 and ending with the highest module number Port 4. Then a certain number of LEDs corresponding to the number of installed modules will stay on for a brief period of time. For example, if six modules are installed, the LEDs for Module 1 Ports 1 through 4 and Module 2 Ports 1 and 2 will stay on briefly. Next, the LEDs will scan down beginning with the highest module number Port 4 and ending with Module 1 Port 1. If you notice one of the LEDs corresponding to the number of installed modules stay on after the LEDs scan down, this indicates a failure with the corresponding module. For example, if the LED for Module 1 Port 2 stays on after the LEDs scan down, then Module 2 has a problem.

The V72 will give diagnostic indications approximately five seconds after completion of the reset/power-up scan. The first diagnostic indication is a hardware check. If the V72 hardware checks out, all four V72 LEDs will flash once. If a hardware failure is detected, one of the first three LEDs for the V72 module will flash continuously. If this happens, you should contact BayTech.

If the hardware check passes, the V72 will read the configuration parameters from the main board non-volatile RAM. If the V72 configuration checks out, all V72 LEDs will flash once. Therefore, if the V72 hardware and configuration checks both pass, you should notice all four LEDs on the V72 flash twice. If you notice that one of the V72 LEDs flashes continuously after the hardware check passes (i.e., after all four V72 LEDs flash once), this indicates that a configuration error has been detected. If this happens, the V72 will not respond to any network access attempts. Configuration problems can be corrected by programming the indicated parameter as follows:

V72 CONFIGURATION DIAGNOSTIC LED DESCRIPTION

Flashing LED Description

1 Non-volatile Memory Fault. The data stored in the non-volatile RAM for the V72's location contained an error. This causes the device in question to be programmed with default parameter information and the IP

and Gateway addresses and the subnet mask will be set to 0.0.0.0. The module will need to be reconfigured and reset before it can operate. This symptom will occur when the V72 is installed into a module slot previously occupied by a different module type.

2 Ethernet Address Fault. If an error occurs in the retrieval of the module's Ethernet address, the address will be set to all 0s, an invalid address. Before the module can operate, it will need to be programmed with a proper address. This address cannot be programmed directly by the user. Contact BayTech if this LED symptom occurs.

3 IP Address Fault. When a module is first installed, it will program its IP Address to 0.0.0.0. The IP Address will need to be programmed before the module can operate.

4 Subnet Mask Fault. When a module is first installed, it will program its Subnet Mask to 0.0.0.0. The Subnet Mask will need to be programmed before the module can operate.

NOTE: When you power up the M-Series DAC with a V72 installed for the first time, the LEDs for Ports 3 and 4 for the V72 will flash continuously until you program the IP Address and Subnet Mask (see Section 5) and reset the unit.

3 OPERATIONAL MODE

When the module passes its hardware and configuration checks, it will then enter operational mode. In operational mode, the following LED indications may be observed.

V72 OPERATION DIAGNOSTIC LED DESCRIPTION

LED Description

1 Active Connection. This LED will remain illuminated for about 30 seconds after the last network connection is terminated.

3 Duplicate IP addresses--another node on the subnet has the same IP address.

4 Cabling Error. This LED will flash continuously when a transmission attempt fails from a cable or a connection malfunction. Once this condition is detected, the module will periodically attempt to transmit on the link and this LED will flash as long as the transmission attempt fails. When the cable problem is corrected, this indication will cease with no further intervention by the user. However, connections may have been lost and will need to be checked and reconnected if necessary.

V72/V72TP MECHANICAL LAYOUT