SL-1EPS-SCSIKit

Congratulations on your purchase of the EPS-SCSI kit, offered by Rubber Chicken Software Co. Below are some important notes about the EPS-SCSI kit.

LIMITATION OF REMEDIES: Rubber Chicken Software Co shall not be liable for any direct, indirect, consequential or incidental damages arising out of the use or inability to use this product. Some states do not allow the exclusion or limitation of liability for consequential or incidental damages, so the above limitations may not apply.

Technical Support

Before calling for technical support, we kindly ask that you first read through ***all*** of these installation instructions and try to find your answers here. If you still need technical support, call Rubber Chicken Software Co. at (800)877-6377 or 320-235-9798. If the EPS-SCSI kit is diagnosed as defective, you will be issued a Return Merchandise Authorization number to authorize the return of the product for repair or replacement.

Warranty Information

Rubber Chicken Software Co. warrant this product with a "Lifetime Warranty," which means that the product is warranted to the original purchaser of this product to be free of defects in materials and workmanship for as long as the original purchaser owns the product. If the product is found to be defective, it will be repaired or replaced free of charge, contingent upon the following conditions:

If the product has been modified without written approval of Rubber Chicken Software Co, or the failure is the result of misuse, abuse, or misapplication as determined by Rubber Chicken Software Co, this warranty is void and Rubber Chicken Software Co has any obligation to repair or replace the product free of charge.

The customer is responsible for properly packing the defective product for shipment and for the cost of shipping the product back to Rubber Chicken Software Co. The printed circuit board must be shipped in an anti-static bag, and the cables and mounting hardware must be returned as well. Rubber Chicken Software Co will ship the repaired or replaced product via UPS Ground or US Mail at no cost to the customer.

Installation Instructions

The EPS-SCSI kit includes all parts necessary to upgrade an EPS Classic or EPS 16-Plus sampling keyboard to support Ensoniq-approved external SCSI hard drives. For this kit to be installed in an Ensoniq EPS Classic, an Ensoniq "ME-1A" 1X or "ME-2" 2X memory expander (or equivalent) must be available. For this kit to be installed in an Ensoniq EPS, an Ensoniq "ME-16 PLUS" 2X memory expander (or equivalent) must be available. The EPS-SCSI kit does not include a memory expander. For the purposes of this document, all versions of the EPS will be referred to as "EPS," and all versions of the memory expander will be referred to as "memory expander."

This procedure applies only to the *keyboard* version of the EPS. The EPS-SCSI kit should also work with the rack-mount versions with small modifications to the following procedure. For example, opening the case of the rack-mount version is different.

Parts List for EPS-SCSI Kit

1	EPS-SCSI PC board (includes 3 pre-installed SCSI terminator resistor arrays)
4	#4-40 5/8" male/female nylon spacers
4	#4-40 1/4" nylon machine screws
2	#4-40 D-shell mounting screws, flat washers, lock washers, and nuts
1	25 pin D-shell (SCSI) to 26 pin socket ribbon cable
2	34 pin socket to 34 pin socket data ribbon cable (one for EPS; one for EPS16+)

Tools Needed:

Philips screwdriver
Needlenose pliers (ideally 2 pair)
Flashlight

Installation Procedures

READ THROUGH *ALL* OF THE FOLLOWING INSTRUCTIONS BEFORE BEGINNING! Installing the SCSI interface on the EPS is straightforward **IF** you follow the instructions in the order presented. If you do not read the instructions, installing the EPS-SCSI kit can be very frustrating at best, and in the worst case, it could ruin your instrument. There is a reason why Ensoniq requires authorized service centers to do work on their gear. Doing it yourself is not "Rocket Science", but the procedure will go much smoother if you read the instructions first! You have been warned.

Step 1 Unplug the EPS. DO NOT PROCEED with the installation while the EPS is plugged in.

Step 2 Remove the memory expander module. This step is a simple matter of using a Philips screwdriver to remove a screw on either side of the memory module on the rear of the EPS, then pulling the expander straight out. If you have never done this before, the force required to pull out the expander is about the same as that required to pull an interface board out of a PC's backplane. If you haven't done that either, then it may be a good idea to seek help from someone who has.

Step 3 Using the Philips screwdriver, remove the 6 screws holding the memory expander housing together. Open the cover to the memory expander keeping the top part of the housing handy. Place the bottom plastic piece and the internal memory board off to the side for now.

Step 4 The top piece of the memory expander housing is designed so that the rear portion can be broken off by flexing it up and down along the notched ridge. Do this being careful not to crack the plastic case. See Figs. 2 and 3 to see the proper location for the break.

Step 5 The base part of the memory expander housing needs to be prepared. Put the memory expander PC board to the side for now. Locate the 25-pin cable included with the EPS-SCSI kit. Position the 25-pin female SCSI connector (the one that looks like an RS-232 port) behind the holes in the base. The row of 13 pins should be on top and the cable should be pointing up out of the connector. Use the #4-40 shell mounting screws, nuts, washers, and lock washers to secure the 25-pin connector into place, but do not firmly tighten the screws yet.

Locate the top piece of the memory expander that you saved. This piece is shown on the right side of Figs. 2 and 3. Place this piece over the 25-pin connector. Then tighten the 2 shell screws. This can be somewhat tricky to get right. If the machine screws are too loose, then it may be difficult to get them tight after positioning the top piece. In this case, the top piece must be taken off so that the screws can be tightened slightly. If the machine screws are initially tightened too much, the top piece won't fit over the shell screws. It may take several attempts to get the shell screws tightened. Afterwards, use 2 of the original 6 Philips screws to secure the top piece in place.

Step 6 Using the hex nut driver, remove the four screws on the top cover of the EPS (see Fig. 1 for the positions of the screws). REMOVE ONLY THESE FOUR SCREWS. Gently lift the cover at the left and right front screw holes. Lifting the cover of the EPS for the first time can be a frightening experience since a certain amount of force must be asserted due to a tight fit between the cover and the offsets that house the rear screw holes. If you have trouble opening the cover at first, slowly increase the amount of force being used, and it should open.

Step 7 Slip the base part of the memory expander through the rectangular hole in the rear panel of the EPS. The 25-pin ribbon cable should be fed in through the rectangular hole. Place the memory expander PC board onto the base. Holding it by its left and right edges, exert enough force to insert the memory expander into the edge connector inside the EPS. Be very careful not to bend the pins of the memory chips on the board - doing so could easily damage the memory expander.

Step 8 Use the four 5/8" long spacers to secure the memory board (one in each corner. Hand tightening is sufficient; the memory board needs to be snug. While holding the 25-wire ribbon cable up and out of the way, position the EPS-SCSI board over the top of the memory expander board. The 10-pin male connector on the EPS-SCSI board must be aligned with the female one on the memory expander board. A small flashlight can help to visually confirm the correct alignment.. Use the four #4-40 nylon machine screws to secure the EPS-SCSI board into place.

Step 9 Connect the 26-pin ribbon cable socket connector (on the end of the 25-pin ribbon cable) to the EPS-SCSI board. If the above instructions were followed, the cable should already be oriented properly, so there is no chance of attaching the cable backwards. The cable is normally very close to the back wall of the EPS. Connect the 34-pin ribbon cable sockets between the 34-pin header on the EPS-SCSI board and the 34-pin header inside the EPS labeled "J3 AUX EXPANSION" (this header is directly to the right of the EPS-SCSI board). Look for the pin-1 indicators near the headers. Basically, the cable connects "straight across" with no strange twists or turns.

Step 10 SCSI terminating resistors are pre-installed in the EPS-SCSI board. The standard SCSI specification calls for terminating resistors on both ends of a chain of SCSI devices. In most equipment configurations, the EPS is most conveniently operated as one of the devices on the end of the SCSI chain. If necessary, the terminating resistors can be removed from the EPS-SCSI board. Note that the resistor networks are not all oriented identically; this is normal. The EPS-SCSI PC board has a "1" label near the pin-1 locations of the resistor networks.

Step 11 Close the cover to the EPS, and secure the cover with the 4 hex screws that were removed in Step 6. Any external SCSI device(s) should be powered on *before* the EPS. Use only high quality SCSI data cables between your SCSI devices to avoid possible problems. Plug in the power cable and turn on the EPS. If all steps were followed properly, the message "SCSI INSTALLED" will appear soon after turning on the power.

A Note About the EPS and EPS 16-Plus

It is our experience that the EPS can be very unreliable at times, regardless of whether the SCSI interface is installed or not. Problems with the EPS are often manifested in the infamous "ERROR 144 - REBOOT?" message. Such problems are often associated with excessive heat buildup inside the EPS. In other words, just because the EPS is giving the "ERROR 144 - REBOOT?" message does not necessarily mean that the EPS-SCSI kit is the source of the problem.

Operating with the EPS-SCSI Interface

The first thing you will notice after turning on the EPS is that the start-up messages are slightly different. The messages are now:

ENSONIQ EPS (or EPS-16 PLUS)
SCSI INSTALLED
SEARCHING FOR SCSI DEV
PLEASE INSERT DISK
LOADING SYSTEM **(assumes the OS disk is in the floppy drive)**
TUNING KBD - HANDS OFF
KEYBOARD TUNED
NO INSTRUMENTS **(assumes no instruments on OS disk)**

After the above sequence, the storage device can be changed to an attached SCSI drive. If the external drive is an Iomega ZIP drive, the SCSI ID is either 5 or 6. The termination switch on the ZIP should be set to ON if it is the only SCSI device on the SCSI chain.
Just as floppies must be formatted before use, every SCSI disk used with the EPS must be formatted. To format a disk, first boot from the floppy (or a different SCSI device) and go through Command/System-MIDI/FORMAT SCSI DRIVE. The disk to be formatted cannot also be the boot device. Several options are presented when formatting a new disk. The options appear in the following order:

FORMAT SCSI DRIVE
LOAD DEVICE = SCSI *x* **(*x* is the SCSI ID your drive is on)**
DISK LABEL = DISK000 **(your choice of Disk Label)**
INTERLEAVE = 2 **("2" seems to work OK most of the time)**
ERASE AND FORMAT DISK? **(pressing Yes starts the format)**
FORMATTING... **(flashes while low-level format is taking place - this takes a while)**
COPY OS TO SCSI DRIVE? **(pressing Yes causes OS to be written to drive; recommended)**
SETUP DEFAULT DIRS? **(Causes lots of default directories to form - ok if you want. We don't recommend it)**
DISK COMMAND COMPLETED

After formatting a new SCSI disk, the storage device can be changed by going through Command/System-MIDI/CHANGE STORAGE DEVICE. Then select the desired SCSI device number, or go back to the floppy.

After the new disk is formatted and is the current disk, you can switch between subdirectories by using the combination Load/System-MIDI, followed by use of the cursor keys, the slider, and the Yes/No buttons. All directories on the disk can be traversed in this manner. Once in a particular subdirectory, any sounds, macros, etc in that directory can be selected with the typical Load/Instrument combination. See your EPS Musician's Manual for more information.