# TASCAM

**TEAC Professional Division**

# MMR-8

**Modular Multitrack Recorder**

# MMP-16

**Modular Multitrack Player**

**MMR-8/MMP-16**
**SCSI Tips for MMR/MMP Users**

# SCSI Tips for MMR/MMP Users

## Table of Contents

# SCSI Tips for MMR/MMP Users

We have found that the quality of materials and attention to detail in setting up external SCSI devices for use with the MMR/MMP system can have a profound effect on the reliability and performance of the system. This document provides details on some of the issues that have been found to impact a successful and trouble-free installation.

## SCSI Cables

There is a considerable difference in quality and performance of cables used to connect SCSI devices. It is imperative that users pay close attention to this issue.

### *Cable Quality*

High quality SCSI cables are essential for proper MMR/MMP system performance. Low quality cables, which are often thin, may cause data transmission errors, file corruption, and system malfunctions. This is often due to improper and insufficient grounding, incorrect pin wiring, and unwired pins. The following SCSI cable manufacturers are highly recommended as a source for MMR/MMP SCSI cables:

**Paralan Corporation** -
www.paralan.com
4655 Ruffner St., San Diego, CA 92111
Tel. (619) 560-7266 || Fax 619-560-8929
email: scsi@paralan.com

**Black Box Corporation** -
www.blackbox.com
1000 Park Drive Lawrence, PA 15055-1018
*Tel:* 724-746-5500 || *Fax:* 724-746-0746
*email* info@blackbox.com

### *Cable Length and Device Support*

The MMR/MMP SCSI host card supports from one to eight SCSI devices. However when one to four SCSI devices are connected, total cable length should not exceed three meters. When five to eight SCSI devices are connected, total cable length should not exceed 1.5 meters. Note that total cable length includes the internal cabling in carriers or drive bays. Thus if a 4-bay drive enclosure contains ribbon cable internally that measures one meter in length, the external cable must not exceed 2 meters. Improper cable length often causes an MMR system to freeze while mounting volumes. (Note: Paralan can provide custom-length SCSI cables).

### *Cabling Wide and Narrow Devices in a System*

**NARROW SCSI** uses 8-bit data transfers. It generally uses a 50-pin connector.
**WIDE SCSI** uses 16-bit data transfers. It generally uses a 68-pin connector. Wide SCSI may also refer to 32-bit SCSI data transfers but 32-bit wide SCSI is not as common.
**Narrow drives should always be placed at the end of a SCSI chain**. This is due to the fact that when a Wide to Narrow connection is made, 8 bits are not passed through, so the Wide drive (and all subsequent SCSI devices in the chain) receives only 8 bits of data instead of 16. If a Narrow drive is connected after a Wide drive, the Wide drive still receives all 16 bits of data.

## SCSI Termination

A terminator provides electrical circuitry at the end of a SCSI chain to prevent the reflection of electrical signals when they reach the end of the chain. The SCSI bus requires terminations only at the ends of the SCSI chain, not in the middle. There are several types of SCSI Termination: Passive, Active, Active Negation, Force Perfect Termination, and Low Voltage Differential.

**The MMR/MMP should only use Active terminators**. This is because active terminators involve a voltage regulator to reduce fluctuation effects in TERMPWR to insignificance. This results in more stable SCSI signals, less signal reflection and fewer data errors. Active negation terminators are most optimized for FAST and Ultra-SCSI speeds. Active negation termination is currently not under testing and thus is not supported by TASCAM.

## Kingston Frame Configuration

When configuring a Kingston receiving frame the settings in Figure 1 must be used. ***Note: All but one setting are factory defaults.*** Jumpers should be installed on W3, W1 and pins 1&2 of J6 (Figure 1). Jumper W2 determines termination. In the "A" position (default) termination resistors are disabled (This is the recommended configuration for most external applications). In certain conditions it may be desirable to terminate at the frame, for example, if an internal bay is being installed in the MMR/MMP. If this is the case jumper W2 should be set in the "B" position

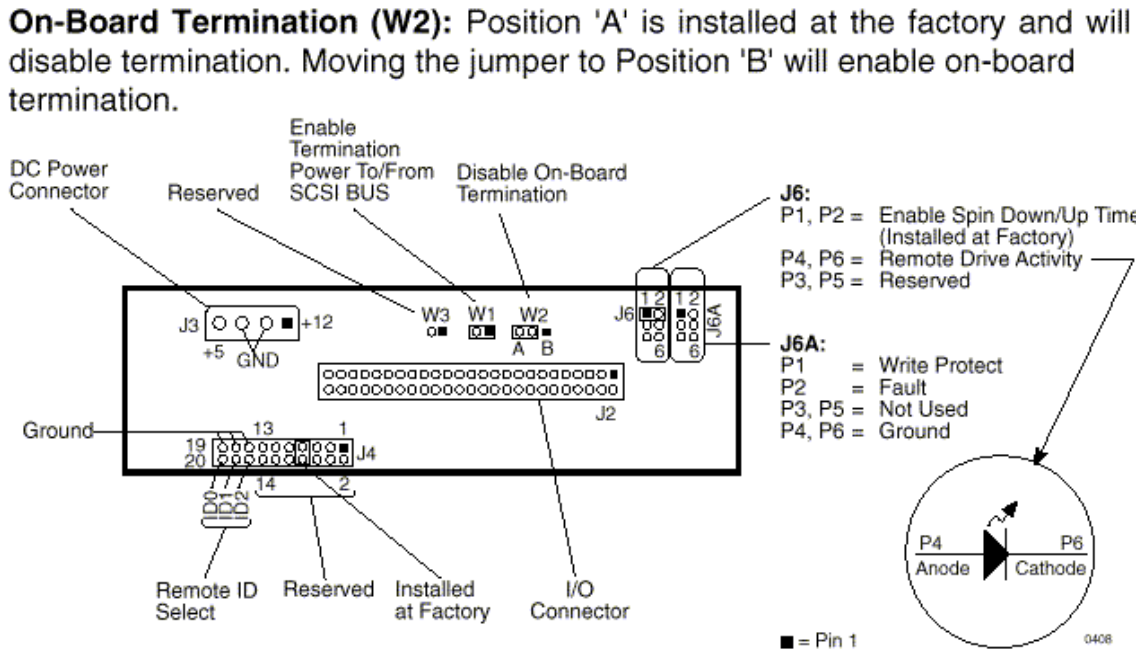


***Figure 1***

# Wide SCSI Cards and Kingston Frames

The MMR/MMP are normally shipped with a narrow Symbios SCSI card. The MMR/MMP units also support the Symbios SYM8751SP Wide SCSI card. To install a wide SCSI card, use a grounding strap and follow the installation instructions below:

## *Removing the Narrow Host Adapter (Symbios SYM 8600SP)*

1) Disconnect the 26-pin ribbon cable from J2 on the MMR Biphase Operations Board, and fold out of the way.
2) Disconnect the 50-pin ribbon cable from J2 on the Symbios SYM8600SP SCSI host adapter.
3) Remove the Phillips head screw that secures the host adapter to the chassis.

4) Carefully remove the host adapter.

## *Installing the Wide Host Adapter (Symbios SYM8751SP)*

1) Prior to inserting the wide host adapter into the PCI slot, connect the 50-pin ribbon cable to J4 on the SYM8751SP. This connector is located on the side of the card, which makes it very difficult to install if the card is already in the PCI slot.
2) Insert the wide host adapter into the same PCI slot that previously contained the narrow adapter.
3) Secure the wide host adapter to the chassis with the Phillips head screw.

4) Reconnect the 26-pin ribbon cable to J2 on the MMR Biphase Operations Board.

## *Wide Kingston Drive Frames*

The Kingston SCSI drive frame in the MMR is normally configured for narrow SCSI. TASCAM can also provide MMR/MMP units configured with wide Kingston frames and carriers, and can perform a service upgrade to remove the existing narrow Kinston frame and carrier and replace it with a wide Kingston frame and carrier. Contact your TASCAM representative for pricing and availability on these wide units. Note that a narrow drive carrier will not fit into a wide frame, and vice versa.

It is possible to mount a narrow SCSI drive in a wide Kingston carrier (or vice versa) by means of an adapter inside the carrier. A good source for these adapters and other SCSI cable peripherals can be found at:

CS Electronics
17500 Gillette Ave.
Irvine, California 92614
Tel (949) 475-9100  Fax (949) 475-9119
http://www.scsi-cables.com/Index.htm

CS Model # ADP-9051 is for HD68-pin male to 50-pin male (for mounting a wide drive in a narrow carrier)
CS Model # ADP-9056 is for HD68-pin female to 50-pin female (for mounting a narrow drive in a wide carrier).

## Certified Drives

The following disk drives have been approved for use with the MMR/MMP:

| Drive Manufacturer | Model | Firmware Version |
|---|---|---|
| IBM | DCHS09F | 2222 |
| Nikon* | DD53-SIP Beluga AV | Unknown |
| Seagate | ST19101W | 0014 |
| Seagate | ST32171N | 0280 |
| Seagate | ST32272N | 0876 |
| Seagate | ST34572N | Unknown |
| Seagate | ST34573N | 5958 |
| Seagate | ST34573W | 5764 |
| Seagate | ST39102LW | 0005 |
| Seagate | ST39173N | 5764 |
| Seagate | ST39173W | 5764 |

Manufacturers frequently release new drive models and obsolete other drive models. The most current list of approved drives can be found on the TASCAM web site at http://www.tascam.com .

* Users should be aware these drives do not perform as well as hard drives. Test results with the NIKON Beluga drive with 1K/sector media show 8 tracks of record and playback in 16- or 24-bit TapeMode is generally reliable. Non-destructive mode performance is less reliable, especially with heavy edit density.

## DVD RAM Support

The MMR/MMP will support SCSI backup and export to DVD RAM disks as of software version 3.1, scheduled for release in February 1999. Testing so far indicates that these drives are several times slower than Magneto-Optical disks for recording and transfers. Playback of a limited number of tracks is possible from a DVD RAM disk, but maximum performance seen to date is 6 channels of 16-bit material in TapeMode.

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73470 Rev B