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Technology



DVD Premium Pro Series

NET Users Manual

www.microboards.com

Version 2.01 NET

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System Overview

The DVD Premium Pro NET Series employs 10 General Purpose DVD-+R/DL recorders in each tower, with the ability to have all connected drives duplicating from a single master. The hard drive comes standard with each tower and allows for DVD/CD image archival and CD track extraction for CD audio compilations.

An intuitive, menu driven display and 5-button control interface provide one-touch operation for the novice user while providing advanced features for the professional.



Advanced Features:

- 20-drive simultaneous burn from one master in NET mode
- Stand-Alone DVD-+R/RW/DL / CD-R duplicator
- One Touch duplication
- Auto Run option
- Speed selectable (1x to 16x for DVD-+R and 4x to 48x for CD-R)
- Supports writing to DVD-+R/RW/DL, CD-R/RW
- Copy and Verify
- Hard drive comes standard for standalone DVD/CD image archival and CD track extraction for audio compilation CDs
- Store multiple hard drive images
- Counter feature allows the user to input how many discs need to be copied and the keeps track of the total discs completed.
- Automatically detects DVD or CD masters
- Simulation mode to ensure recording stability
- Easy-to-read, two-line display for status and error reporting
- Updates easily installed through DVD/CD reader

Unpacking your system

When unpacking your duplicator, confirm the following items are included:

- DVD Premium Pro Series duplicators (minimum of 2)
- Power cable
- NET connection cabling with each Slave tower
- Microboards Starter Kit, Connection and Configuration Guides, and Documentation CD

If any of these items are missing, please contact or Microboards Technology Technical Support at 952-556-1639.

IMPORTANT: Please keep all the packing for your DVD Premium Pro Series duplicator. If your unit ever needs to be sent in for service, it must be returned in the original packing or the warranty will be voided.

Microboards Statement Regarding Improper Duplication

Microboards Technology fully supports the right of any business, organization, group, or individual to protect their property from unlicensed, unauthorized, or illegal duplication.

As a user of our equipment, we expect you to support that right as well.

Microboards Technology is neither responsible nor liable for the infringement of any laws regarding the illegal duplication of property. Microboards Technology products are in no way intended to encourage or condone such duplication.

Installation Requirements

System Setup

- Connect the power cable to the DVD Premium Pro Series tower and plug in to a protected power outlet strip or UPS power supply.
- Connect the 2 towers using the NET cable provided (see page 7 for more information).
 - The left port on the back is the **IN** port, and the right is the **OUT** port; the Master tower should have the NET cable plugged into the **OUT** port, and the Slave should have the cable plugged into the **IN** port.
 - If more than 2 towers are being connected, connect the **OUT** port in the first Slave to the **IN** port of the next. In the final chain of towers, the Master will have only the **OUT** port used, while the final tower will have only the **IN** port used.
- Turn on power to the towers. The system is now ready to be configured (see page 8).

Install your DVD Premium Pro Series duplicator in the following environment:

- On a level and stable surface
- In a well ventilated location
- Temperature and humidity
- Temperature: 5-40°
- Humidity: 20-80%RH (no dew formation)

Do not install it in the following places:

- Under direct sunlight (If the machine is exposed to sunlight, the light should be blocked by a curtain or blind.)
- A dusty location
- A place where there is a lot of vibration
- Near open flame
- A place where the temperature and humidity change drastically
- Near a heating device such as a heater or furnace
- A location where air from an air conditioner blows directly onto the unit
- Near a container filled with water

In winter during times of low humidity or in a location where static electricity is generated, use an anti-static-electricity mat or humidifier to prevent static electricity.

Power Supply Requirements

Each tower can draw up to 3 amps of current during normal operation. It is highly recommended that your towers operate on a dedicated circuit with a maximum of 4 towers for each 15 amps of current. Overloading a circuit will cause failures.

- Use house current as the power source for the unit.
- Do not use an outlet near a motor driven appliance (i.e. air conditioner, copying machine).
- Use an outlet with stable power supply voltages.
- Do not overload an outlet. Do not use a service outlet from a PCs or other office machine.
- Wire the power cord properly.
- Do not touch the power cord with a wet hand.
- Be careful not to damage the power cord.

Inspect the power cord periodically.
In the event that the power cord is damaged, replace the power cord.

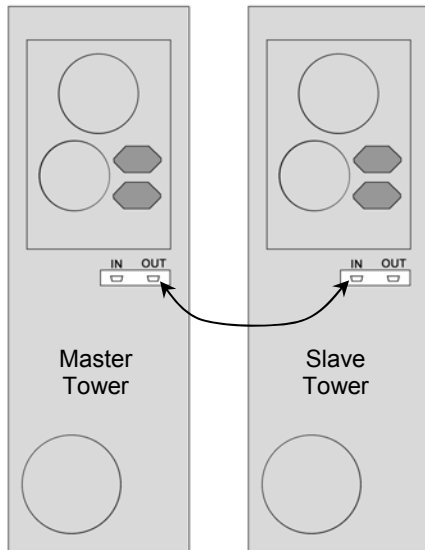


Be sure to use a tool such as the screwdriver to change the 115/230V Switch.
Do not use your finger.

Connecting Master and Slave Towers

The Microboards DVD Premium Pro NET tower line requires a physical connection between the towers. A tower will be designated as a Master or as a Slave tower initially based solely on the configuration of the connection.

The directions below give 2 connection scenarios: a 2-tower configuration, and a Multi-Tower configuration. Please use the appropriate instructions based on the number of towers you have. The diagrams below show the backs of the towers.



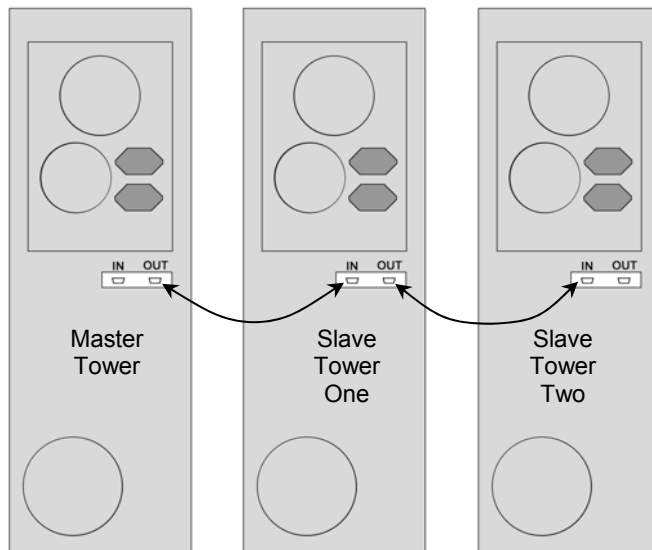
2-Tower Configuration

For the 2-Tower configuration, connect the **OUT** port of one tower to the **IN** port of the other using the provided cabling. Whichever tower is connected by the **OUT** port will become the Master tower. The tower that is connected by the **IN** port other will become the Slave tower.

Once the towers are turned on and initialized, press **YES** on the Master tower to enter NET mode.

For Stand-alone operation, press **NO** on both the Master and Slave when the configuration display is showing. Each tower will then operate as an independent tower.

To return to NET mode, you will need to restart both towers.



Multi-Tower Configuration

For Multi-Tower configuration (3 towers are shown here), select one tower as the Master and connect one end of one of the provided cables to the **OUT** port on the Master tower and the other end to the **IN** port on Slave Tower One. Plug the next cable to the **OUT** port of Slave Tower One and to the **IN** port of Slave Tower Two.

If you have more than 3 towers, continue to connect the remaining towers in the same fashion. The last tower will only have a cable connected to the **IN** port.

Once the Master and Slave towers have initialized, the displays will give you the configuration options.

Microboards NET Configuration

The Microboards NET configuration allows you to connect multiple 10-drive tower duplicators. They can function together as a single duplicator with 10 drives per tower for ultra high-quantity production, or can operate independently as stand-alone duplicators, each copying from a different master.

It does not matter which tower is set as the Master; the only restriction is that one tower of the chain must have the NET cable connected to the Out port only. The last tower in the chain will only use the In port.

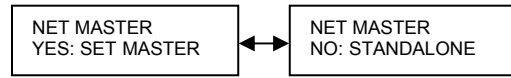
Configuration Options

To set the Multi-Tower configuration, turn on power to all of the connected towers and wait for the configuration options to be displayed, as shown to the right.

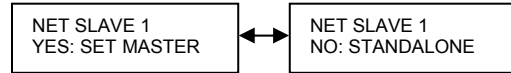
The exact display message and configuration options on each tower will depend on the location of that tower in the chain.

Once the configuration has been selected, you must either power cycle all towers or run the Net Reboot on all Master towers to change the configuration.

The display of any Master or Stand-Alone tower will initially read **COPY START** when it is ready for duplication. The control panel on Slave towers is disabled.



Master Display alternates between these messages



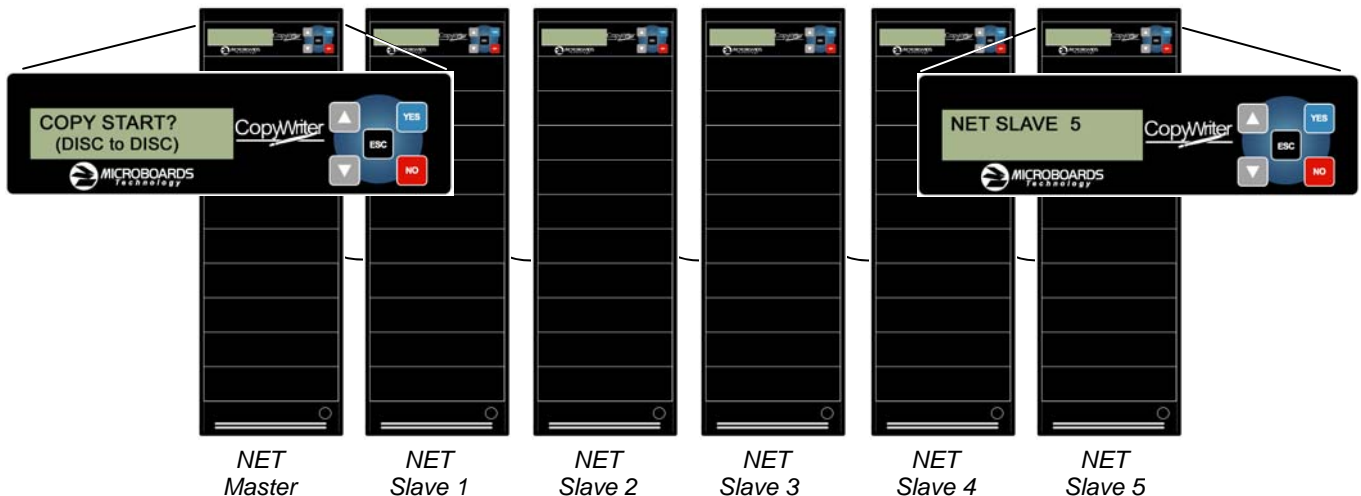
First Slave Display, additional Slave towers show Slave number sequentially



Final tower in chain

Basic Configuration

The most basic configuration would be to set the first tower as the Master with the remaining towers as Slaves. For this configuration, you would only need to press the **YES** button on the Master tower when the configuration options are showing.



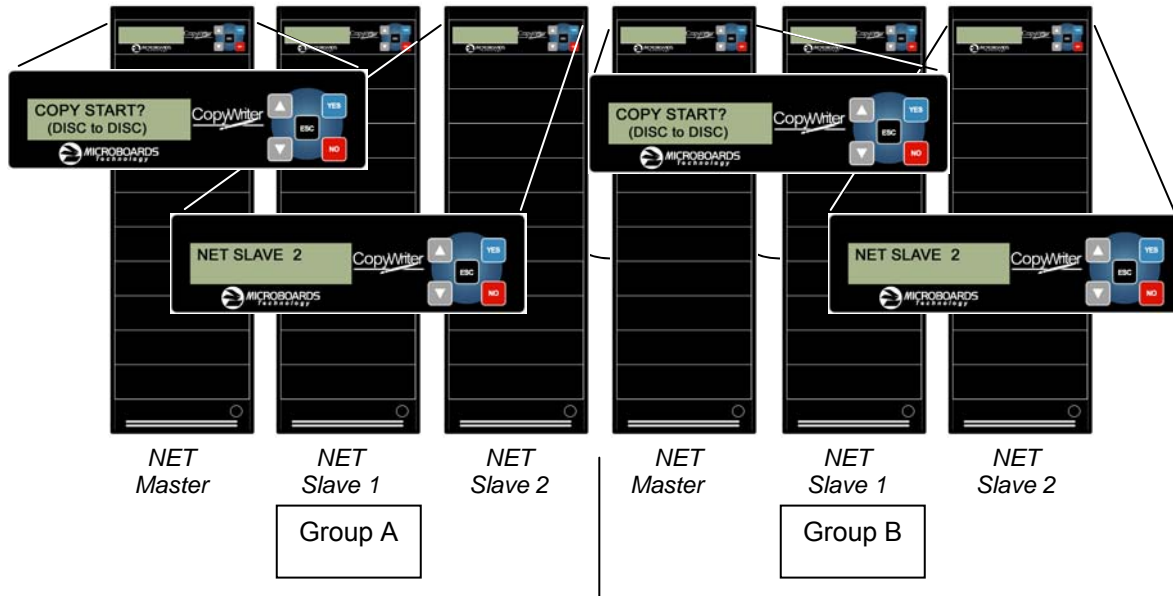
The result with a six-tower configuration is shown above. Only the reader and hard drive on the NET Master will be available as source drives.

Net Reboot and Basic Configuration

To run the Net Reboot, press either the ▲ or ▼ button until the display reads **SETUP**. Press the **YES** button, then press either the ▲ or ▼ button until the display reads **NET REBOOT**. Press **YES** and all towers will reboot.

Advanced Configuration

If, however, you wish to operate them as two 3-tower Master/Slave groups, simply press the **YES** button on the tower on which the Configuration Options display reads **NET SLAVE 3**. This will cause all towers following this tower to be slaved to that tower. The **YES** button on the first tower must also be pressed to slave towers 2 and 3 to the first tower. The reader and hard drive in the NET Master towers of both groups can be used for duplication to the connected Slave towers. The resulting Master/Slave configuration is shown below.



This can be done in any combination of towers. However, you must set the Master/Slave configurations starting with the last master you want to set, following the tower chain from the end to the beginning.

You do not need to disconnect any towers to change the Master/Slave configuration.

Net Reboot and Advanced Configuration

To run the Net Reboot, press either the **▲** or **▼** button until the display reads **SETUP**. Press the **YES** button, then press either the **▲** or **▼** button until the display reads **NET REBOOT**. Press **YES** and all towers slaved to that Master will reboot. In the example above, the Net Reboot would need to be run on both the Group A Master tower and the Group B Master tower for all 8 towers to reboot.

Stand-Alone Operation

For all towers in the chain to operate in Stand-Alone mode, the **NO** button must be pressed on each tower to select Stand-Alone mode. The order in which this is done does not matter.

You can combine Stand-Alone and Advanced Configurations. After start-up in the example above, pressing **YES** on **NET SLAVE 4**, **NO** on **NET SLAVE 3**, and **YES** on the **NET MASTER** tower would create 3 groups: Group A with 3 towers, Group B as a single Stand-Alone tower, and Group C with 2 towers.

Net Reboot and Stand-Alone Operation

When in Stand-Alone Operation, the Net Reboot option does not appear in the Setup menu. Each tower will need to be power cycled manually.

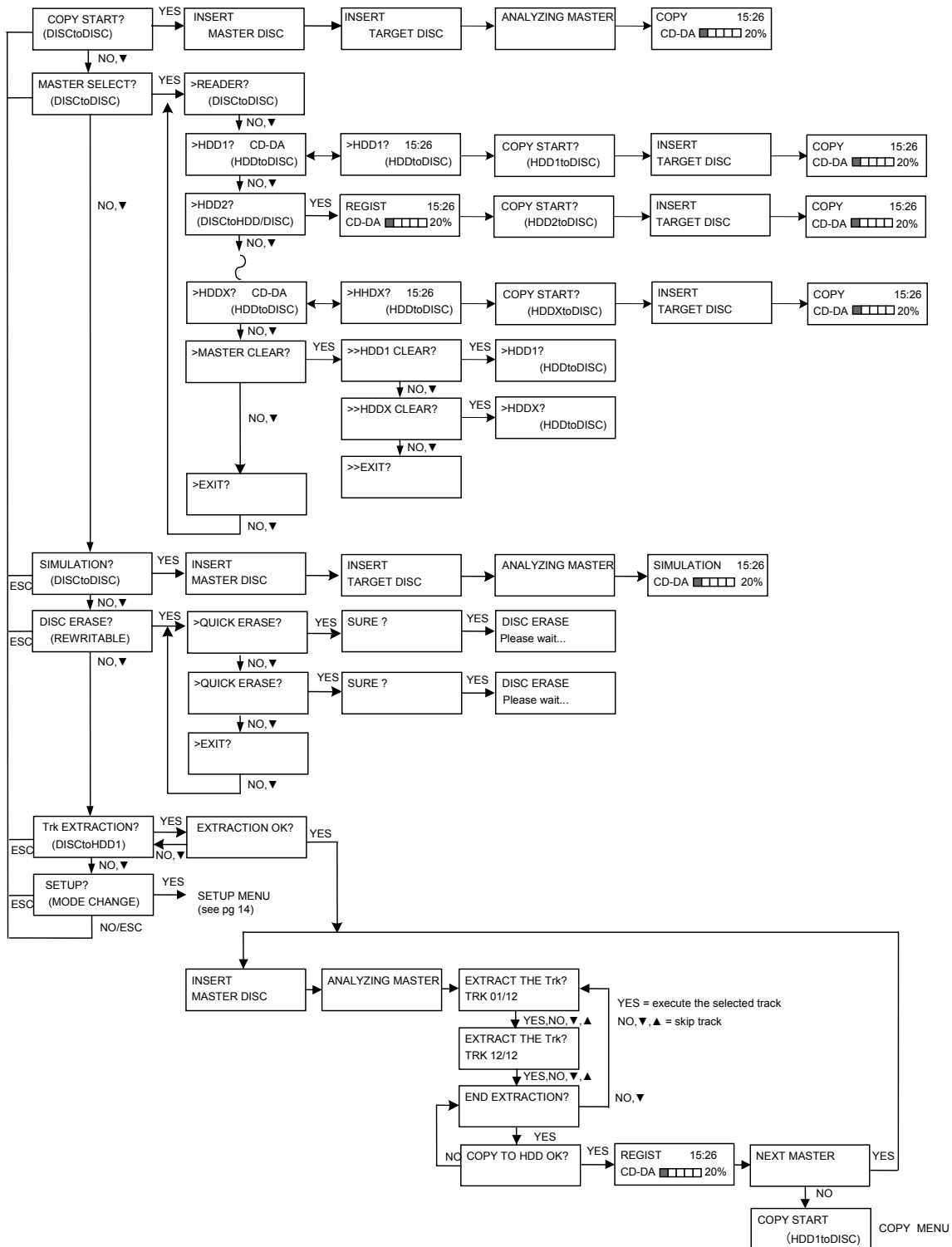
Loading media

To automatically eject all empty recorder drives in all connected towers, simply load your master disc and press the **YES** button when the display reads **COPY START**. This will eject all drives that have not had media loaded. When all drives are loaded and the drive LEDs turn off, duplication will automatically begin.

If you do not need to burn a copy in each recorder drive, load the number of drives necessary, close those drives, and wait for the drive LEDs to turn off. Press the **YES** button, and any open trays will automatically close but be considered empty.

Main Menu

The Arrow buttons (▼▲) allow you to move forward or backward in the menu without selecting the current menu item. The NO button will move you to the next menu item. YES will select the current menu item.




Copy Disc to Disc

- Place the Master Disc into the Reader drive.
Place the blank disc(s) into the Recorder drive(s) and wait 10 seconds for the light(s) on the front of the Recorder(s) to stop blinking. Note that the blanks must be of the same media type as the master; you cannot copy a CD master to DVD's, for instance.
- The display reads COPY START? (DISC to DISC).

COPY START?
(DISC to DISC)

- Press YES. If you have the Auto Run feature set to ON, the duplication will begin when the master is loaded and all drives are loaded with blank media.
- The drive trays will open on any recorder without blank discs installed. If you do not want to make a copy in those drives, close the tray(s), wait for the drive light to go out, and then press the YES button to start the copy job.
- The display will now show the progress of the Copy Job.

COPY 4.0GB
DVD  25%

- The Recorder(s) will eject the recordable discs when the job is complete.

Registering Data to the Hard Drive (HDD)

When registering data to a partition on the internal hard drive, you do have the option of recording to the blank media as well. In the SETUP menu, go to "Copy DISC to HD/DISC" and change the setting from OFF to ON. This will allow the data from the master disc to be copied to the internal hard drive, as well as any blank discs you have in the recorders. See page 14 for a description of the SETUP menu.

- At the COPY START? (DISC to DISC) menu, press the NO or ▼ button until the display shows MASTER SELECT? (DISC TO DISC)

MASTER SELECT?
(DISC to DISC)

- Place the Master disc into the Reader drive.
- Press the YES button.
- The display will show:

READER?
(DISC to DISC)

- Press the NO or ▼ button
- The display will now show:

HDD1?
(DISC to HDD)

- If you wish to copy the data to the 1st partition, press the YES button.
- If you wish to select another partition, press the NO or ▼ button.

HDD1?
(DISC to HDD)

- By continuing to press the NO or ▼ button, you will scroll through the different HDD partitions. Once you are at the partition you wish to use, press the YES button.
- The display will now show the progress of the data being transferred to the hard drive:

REGISTER 4.0GB
DVD  25%

- Once the Master disc has been copied to the HDD, the Reader drive will eject the disc. When you go back into the MASTER SELECT? Menu, and select a partition with data stored on it, the display will show the type of data (ROM or Video) and the capacity of that data. Proceed to COPY HDD TO DVD section.

Copy Hard Drive (HDD) to Disc

- Follow the instructions on page 10 to register the Master to the HDD.
- Press to NO or ▼ button until the screen displays

MASTER SELECT?
(DISC)

- Press the YES button.
- The display will show READER.
- Press the NO or ▼ button and the display will show HDD1. If this is the hard drive partition you wish to copy, press the YES button.
- The screen will display COPY START? (HDD1 to DISC)

COPY START?
(HDD1 to DISC)

- If you wish to select a different hard drive partition, press the NO or ▼ button in step 5, until the display shows the partition you wish to copy.
- Place the blank disc(s) into the Recorder(s) and wait 10 seconds for the light(s) on the front of the Recorder(s) to stop blinking.
- Press the YES button. If you have the Auto Run feature set to ON, the duplication will begin when all drives are loaded with blank media.
- The drive trays will open on any recorder without blank discs installed. If you do not want to make a copy in those drives, close the tray(s), wait for the drive light to go out, and then press the YES button to start the copy job.
- The display will now show the progress of the copy job from the HDD to the Recorder(s):

| | |
|------|---|
| COPY | 4.0GB |
| DVD | <div style="display: flex; align-items: center;"> <div style="width: 25px; height: 10px; background-color: gray; margin-right: 5px;"></div> <div style="width: 25px; height: 10px; border: 1px solid gray; margin-right: 5px;"></div> <div style="width: 25px; height: 10px; border: 1px solid gray; margin-right: 5px;"></div> <div style="width: 25px; height: 10px; border: 1px solid gray;"></div> </div> 25% |

- After the Copy job is complete, the disc(s) will be ejected from the Recorder(s).

Clearing the Hard Drive (HDD)

The Master Clear option will not appear if there is no information stored on any of the hard drive partitions.

- At the COPY START? (HDD1 to DISC) menu, press the NO or ▼ button until the display shows MASTER SELECT? (HDD1 to DISC).
- Press the YES button.
- The display will show:

READER?
(DISC to DISC)

- Press the NO or ▼ button until you the screen displays MASTER CLEAR? (HDD):


MASTER CLEAR?
(HDD)

- Press the YES button
- You can now select which hard drive partition to erase. Pressing the NO or ▼ button will scroll you though the partition selections.

7. Press the YES button if you are sure you want to clear the HDD.
8. The hard drive will now be cleared and you will be asked if you want to register another master to the HDD.

>HDD1?
(DISC to HDD)

9. Press YES and the Reader drive will eject and you can insert another master to register to the HDD.

REGISTER 4.0GB
DVD  25%

10. Press NO and to exit this menu without registering data to the hard drive partition.


Simulation Disc to Disc

Important: Simulation is not allowed when using DVD+R/RW media.

1. At the COPY START? (DISC to DISC) menu, press the NO or ▼ button until the display shows SIMULATION? (DISC to DISC).

SIMULATION??
(DISC to DISC)

2. Place the Master Disc into the Reader drive
3. Place the blank disc(s) into the Recorder drive(s) and wait 10 seconds for the light(s) on the front of the Recorder(s) to stop blinking.
4. Press YES.
5. The drive trays will open on any recorder without blank discs installed. If you do not want to make a copy in those drives, close the tray(s), wait for the drive light to go out, and then press the YES button to start the copy job.
6. The display will now show the progress of the Simulation Copy Job

SIMULATION 4.0GB
DVD  25%

7. The Recorder(s) will eject the DVD-R discs when the job is complete.

Note: DVD-R media will NOT be recorded to in Simulation Mode.

Erasing RW media

1. At the COPY START? (DISC to DISC) menu, press the NO or ▼ button until the display shows DISC ERASE? (REWITABLE):

DISC ERASE?
(REWITABLE)

2. Load the Recorder(s) with the CD-RW or DVD-+RW media you wish to erase. You can erase one disc at a time or fill all the Recorders to erase multiple discs at once. All discs loaded must be of the same type.
3. Press the YES button
4. The next screen asks if you want to perform a Quick Erase.
If you wish to perform a Full Erase, press the NO button.

QUICK ERASE?

FULL ERASE?

Pressing the YES button at either of these selections will show the following screen:

SURE?

Press the YES button if you are sure you want to erase the DVD-RW disc. If you do not wish to erase the disc, press the NO button and you will go back to the DISC ERASE screen (step 1).

- The screen will now show:

DISC ERASE

- Once the erasing is complete, the Recorder(s) will eject the disc(s).

Track Extraction (for CD ONLY)

When extracting tracks to the internal hard drive, the DVD Premium Pro Series always uses the first HDD partition. If there is information already stored on HDD partition 1, the system will ask if you want to overwrite this information. This partition cannot be changed from HDD partition one.

- At the COPY START? Menu, press the NO or ▼ button until the display reads:

Trk EXTRACTION?
(CDtoHDD)

Press the YES button.

- Press YES again in the following screen.

EXTRACTION OK?

If any master data is already registered in HDD, the DVD Premium Pro Series asks you whether you want to overwrite data.

Press YES to overwrite, NO to cancel.

- Insert a master audio disc into the reader drive. DVD Premium Pro Series will analyze the master disc.

INSERT
MASTER DISC

ANALYZING MASTER

- After it completes analyzing the master disc, it displays Selected Track Number / Total Track Number.

EXTRACT THE Trk?
TRK 01/12

This master data has total 12 tracks.

Press NO or ▼ to skip forward a track.

Press YES to select the track you want to extract.

- If you skip forward all tracks, it asks if you want to end extraction for the master data.

END EXTRACTION?

Press YES to finish extraction and register selected tracks in HDD.

Press NO or ▼ to add more tracks from this master data.

- If you press YES in step 5, the DVD Premium Pro Series asks you to register the extracted tracks in HDD.

COPY TO HDD OK?

Press YES to start registration.

7. After registration completes, the DVD Premium Pro Series asks you if you want to extract more tracks from other master audio discs.

NEXT MASTER

Press YES to extract more tracks from other master audio discs.

Press NO to complete extraction.

8. If you press NO, the DVD Premium Pro Series moves back to COPY menu so that you can copy the extracted tracks in HDD to blank CD-R media.

COPY START
(HDD to DISC)

Error status in Track Extraction:

In the following situation in TRACK EXTRACTION, the DVD Premium Pro Series shows an error status on the LCD.

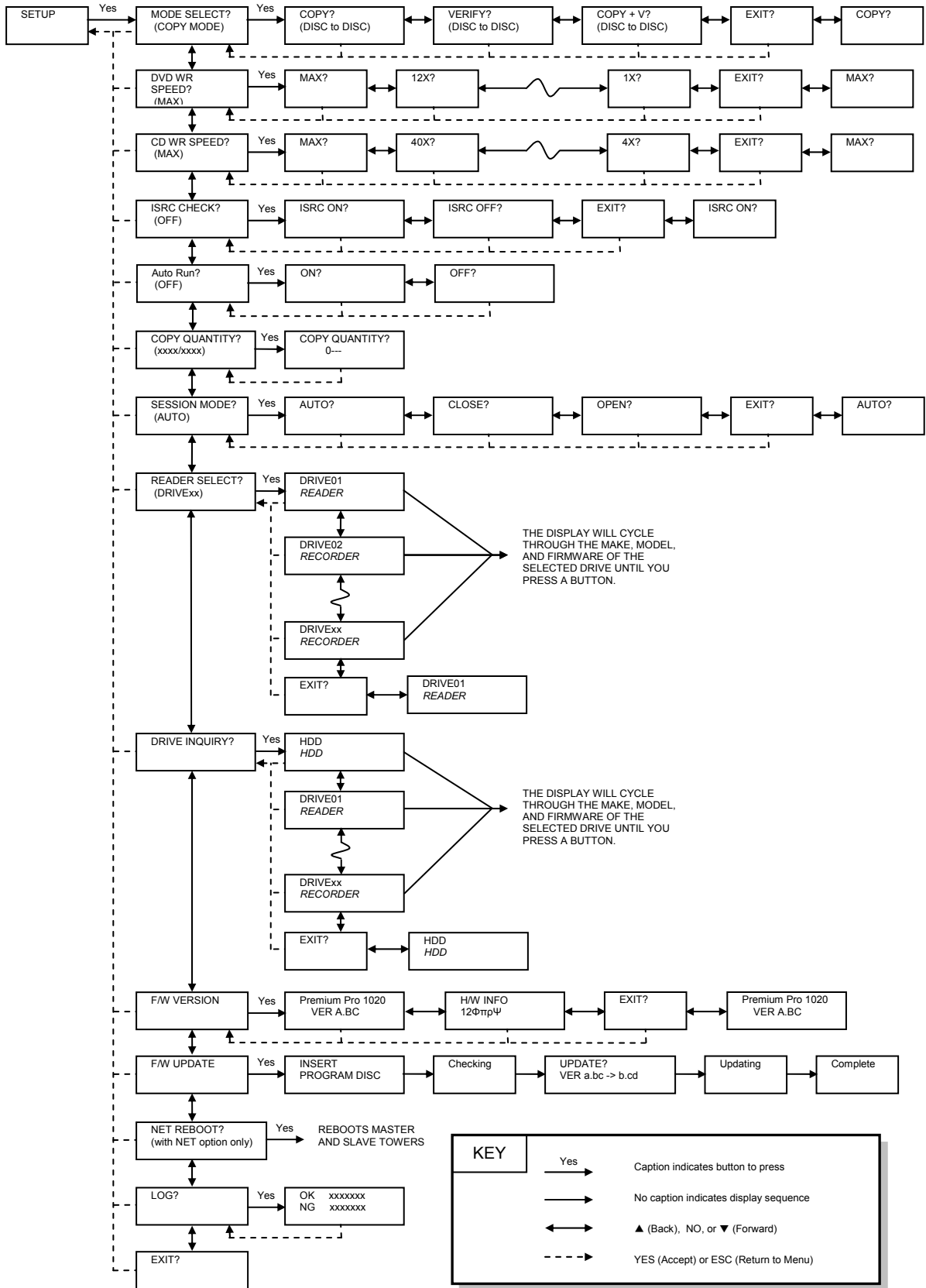
1. If you try to extract a track which is not CD-DA, the track number does not display properly, showing “—“. Pressing the YES button will not add the track.

EXTRACT THE Trk?
--/12

2. If the total time of extracted audio tracks is over 80 minutes or 99 tracks have already been selected, the DVD Premium Pro Series displays OVER. Pressing the YES button will not add the track.

EXTRACT THE Trk?
06/12 OVER

Setup Menu



Setup Menu

1. At the COPY START? (DISC to DISC) menu, press the NO or ▼ button until the display shows SETUP? (MODE CHANGE)
2. Press the YES button
3. The first setup option is Mode Select, followed by Copy DISC to HD/DISC, Write Speed, ISRC Check, Copy Quantity, Session Mode, Drive Inquiry, Firmware Version and Exit.
4. Pressing the NO or ▼ button will allow you to move from menu to menu.
5. Pressing the YES button will allow you to view or change the configuration of the system.

SETUP?
(MODE CHANGE)

Here is a description of each setup menu item:

Mode Select

COPY - Duplication from master disc to blank disc, or HDD to blank disc if master data is registered.

VERIFY - It compares a copied disc with the master disc.

COPY+V - Copying in the COPY+VERIFY mode

DVD WR Speed

Available speeds range from 16x down to 1x.

CD WR Speed

Available speeds range from 48x down to 4x.

ISRC Check

Default setting is ON. This feature will copy the ISRC codes from the Master audio disc to the blank discs.

Auto Run

Default setting is OFF. When set to ON, this allows the duplicator to start the duplication process when all recorders are loaded with blank media. If you are copying Disc-to-Disc, the master must be loaded before duplication will begin.

Copy Quantity

Set up the number of disc you want to copy.

Use the ▼▲ buttons to change the number in the current column up or down. YES will move you one column to the right, NO will move you 1 column to the left. Press YES when in the right column to save the number of copies entered. The example above shows that 750 copies have been entered with the cursor currently in the right column (underlined).

>>COPY QUANTITY
0750

Session Mode (CD only. Invalid for DVD)

Select either from AUTO, CLOSE, or OPEN.

AUTO: Make the session of copied disc as same as the master.

CLOSE: Close the session of copied disc.

OPEN: Leave the session of copied disc open.

Reader Select

Changes which drive is selected as the reader. This setting should not be changed.

Drive Inquiry

Displays an inquiry of each drive connected, showing drive model and firmware.

F/W Version

Shows DVD Premium Pro Series firmware version and H/W information.

F/W Update

Used when updating the firmware of the DVD Premium Pro Series duplicator.

NET Reboot

Will reboot the Master tower and any towers Slaved to the Master when running using the NET option. This menu item is not available when running in Stand Alone mode.

Log

Displays the number of successful and unsuccessful discs over the entire life of the duplicator.

Error Codes

Read Errors

| ASC | ASCQ | Description |
|-----|------|---|
| 00 | 00 | NO ADDITIONAL SENSE INFORMATION |
| 00 | 06 | I/O PROCESS TERMINATED, PLAY OPERATION ABORTED |
| 00 | 11 | AUDIO PLAY OPERATION IN PROGRESS |
| 00 | 12 | AUDIO PLAY OPERATION PAUSE |
| 00 | 13 | AUDIO PLAY OPERATION SUCCESSFULLY COMPLETED |
| 00 | 14 | AUDIO PLAY OPERATION STOPPED DUE TO ERROR |
| 00 | 15 | NO CURRENT AUDIO STATUS TO RETURN |
| 00 | 17 | CLEANINF REQUESTED |
| 01 | 00 | NO INDEX/SECTOR SIGNAL |
| 02 | 00 | NO SEEK COMPLETE |
| 04 | 00 | LOGICAL UNIT NOT READY, CAUSE NOT REPORTABLE |
| 04 | 01 | LOGICAL UNIT IS IN PROCESS OF BECOMING READY |
| 04 | 02 | LOGICAL UNIT NOT READY, INITIALIZING CMD. REQUESTED |
| 04 | 03 | LOGICAL UNIT NOT READY, MANUAL INTERVENTION REQUIRED |
| 04 | 07 | LOGICAL UNIT NOT READY, OPERATION IN PROGRESS |
| 05 | 00 | LOGICAL UNIT DOES NOT RESPOND TO SELECTION |
| 06 | 00 | NO REFERENCE POSITION FOUND (medium may be upside down) |
| 08 | 00 | LOGICAL UNIT COMMUNICATION FAILURE |
| 08 | 01 | LOGICAL UNIT COMMUNICATION TIME-OUT |
| 08 | 02 | LOGICAL UNIT COMMUNICATION PARITY ERROR |
| 08 | 03 | LOGICAL UNIT COMMUNICATION CRC ERROR (ULTRA-DMA/32) |
| 09 | 00 | TRACK FOLLOWING ERROR |
| 09 | 01 | TRACKING SERVO FAILURE |
| 09 | 02 | FOCUS SERVO FAILURE |
| 09 | 03 | SPINDLE SERVO FAILURE |
| 0A | 00 | ERROR LOG OVERFLOW |
| 0B | 00 | WARNING |
| 0B | 01 | WARNING-SPECIFIED TEMPERATURE EXCEEDED |
| 0B | 02 | WARNING-ENCLOSURE DEGRADED |
| 10 | 00 | ID CRC OR ECC ERROR |
| 11 | 01 | UNRECOVERED READ ERROR |
| 11 | 02 | ERROR TOO LONG TO CORRECT |
| 11 | 05 | L-EC UNCORRECTABLE ERROR |
| 11 | 06 | CIRC UNRECOVERED ERROR |
| 11 | 0F | ERROR READING UPC/EAN NUMBER |
| 11 | 10 | ERROR – LOSS PF STREAMING |
| 12 | 00 | ADDRESS MARK NOT FOUND FOR ID FIELD |
| 13 | 00 | ADDRESS MARK NOT FOUND FOR DATA FIELD |
| 14 | 01 | RECORD NOT FOUND |
| 14 | 05 | RECORD NOT FOUND – RECOMMEND REASSIGNMENT |
| 14 | 06 | RECORD NOT FOUND – DATA AUTO – REALLOCATED |
| 15 | 00 | RANDOM POSITIONING ERROR |
| 15 | 01 | MECHANICAL POSITIONING ERROR |
| 15 | 02 | POSITIONING ERROR DETECTED BY READ OF MEDIUM |
| 17 | 00 | RECOVERED DATA WITH NO EECOR CORRECTION APPLIED |
| 17 | 01 | RECOVERED DATA WITH RETRIES |
| 17 | 02 | RECOVERED DATA WITH POSITIVE HEAD OFFSET |
| 17 | 03 | RECOVERED DATA WITH NEGATIVE HEAD OFFSET |
| 17 | 04 | RECOVERED DATA WITH RETRIES AND/OR CIRC APPLIED |
| 17 | 05 | RECOVERED DATA USING PREVIOUS SECTOR ID |
| 18 | 00 | RECOVERED DATA WITH ERROR CORRECTION APPLIED |
| 18 | 01 | RECOVERED DATA WITH ERROR CORP. & RETRIES APPLIED |
| 18 | 03 | RECOVERED DATA WITH CIRC |
| 18 | 04 | RECOVERED DATA WITH L-EC |
| 1A | 00 | PARAMETER LIST LENGTH ERROR |
| 1B | 00 | SYNCHRONOUS DATA TRANSFER ERROR |
| 1E | 00 | RECOVERED ID WITH ECC CORRECTION |
| 20 | 00 | INVALID COMMAND OPERATION CODE |
| 21 | 00 | LOGICAL BLOCK ADDRESS OUT OF RANGE |
| 24 | 00 | INVALID FIELD IN CDB |
| 25 | 00 | LOGICAL UNIT NOT SUPPORTED |
| 26 | 00 | INVALID FIELD IN PARAMETER LIST |
| 26 | 01 | PARAMETER NOT SUPPORTED |
| 26 | 02 | PARAMETER VALUE INVALID |
| 26 | 03 | THRESHOLD PARAMETERS NOT SUPPORTED |
| 26 | 04 | INVALID RELEASE OF ACTIVE PERSISTENT RESERVATION |
| 28 | 00 | NOT READY TO READY CHANGE, MEDIUM MAY HAVE CHANGED |
| 29 | 00 | POWER ON, RESET, OR BUS DEVICE RESET OCCURRED |
| 29 | 01 | POWER ON OCCURRED |
| 29 | 02 | SCSI BUS RESET OCCURRED |
| 29 | 03 | BUS DEVICE RESET FUNCTION OCCURRED |
| 29 | 04 | DEVICE INTERNAL RESET |

| | | |
|----|----|--|
| 2A | 00 | PARAMETERS CHANGED |
| 2A | 01 | MODE PARAMETERS CHANGED |
| 2A | 02 | LOG PARAMETERS CHANGED |
| 2A | 03 | RESERVATIONS PREEMPTED |
| 2B | 00 | COPY CANNOT EXECUTE SINCE HOST CANNOT DISCONNECT |
| 2C | 00 | COMMAND SEQUENCE ERROR |
| 2C | 05 | PERSISTENT PREVENT CONFLICT |
| 2F | 00 | COMMANDS CLEARED BY ANOTHER INITIATOR |
| 30 | 00 | INCOMPATIBLE MEDIUM INSTALLED |
| 30 | 01 | CANNOT READ MEDIUM - UNKNOWN FORMAT |
| 30 | 02 | CANNOT READ MEDIUM - INCOMPATIBLE FORMAT |
| 30 | 03 | CLEANSING CARTRIDGE INSTALLED |
| 35 | 00 | ENCLOSURE SERVICES FAILURE |
| 35 | 01 | UNSUPPORTED ENCLOSURE FUNCTION |
| 35 | 02 | ENCLOSURE SERVICES UNAVAILABLE |
| 35 | 03 | ENCLOSURE SERVICES TRANSFER FAILURE |
| 35 | 04 | ENCLOSURE SERVICES TRANSFER REFUSED |
| 39 | 00 | SAVING PARAMETERS NOT SUPPORTED |
| 3A | 00 | MEDIUM NOT PRESENT |
| 3A | 01 | MEDIUM NOT PRESENT-TRAY CLOSED |
| 3A | 02 | MEDIUM NOT PRESENT-TRAY OPEN |
| 3B | 0F | END OF MEDIUM REACHED |
| 3B | 11 | MEDIUM MAGAZINE NOT ACCESSIBLE |
| 3B | 12 | MEDIUM MAGAZINE REMOVED |
| 3B | 13 | MEDIUM MAGAZINE INSERTED |
| 3B | 14 | MEDIUM MAGAZINE LOCKED |
| 3B | 15 | MEDIUM MAGAZINE UNLOCKED |
| 3B | 16 | MECHANICAL POSITIONING OR CHANGER ERROR |
| 3D | 00 | INVALID BITS IN IDENTIFY MESSAGE |
| 3E | 00 | LOGICAL UNIT HAS NOT SELF-CONFIGURED YET |
| 3E | 01 | LOGICAL UNIT FAILURE |
| 3E | 02 | TIMEOUT ON LOGICAL UNIT |
| 3F | 00 | TARGET OPERATING CONDITIONS HAVE CHANGED |
| 3F | 01 | MICROCODE HAS BEEN CHANGED |
| 3F | 02 | CHANGED OPERATING DEFINITION |
| 3F | 03 | INQUIRY DATA HAS CHANGED |
| 40 | NN | DIAGNOSTIC FAILURE ON COMPONENT NN (80H-FFH) |
| 43 | 00 | MESSAGE ERROR |
| 44 | 00 | INTERNAL TARGET FAILURE |
| 45 | 00 | SELECT OR RESELECT FAILURE |
| 46 | 00 | UNSUCCESSFUL SOFT RESET |
| 47 | 00 | SCSI PARITY ERROR |
| 48 | 00 | INITIATOR DETECTED ERROR MESSAGE RECEIVED |
| 49 | 00 | INVALID MESSAGE ERROR |
| 4A | 00 | COMMAND PHASE ERROR |
| 4B | 00 | DATA PHASE ERROR |
| 4C | 00 | LOGICAL UNIT FAILED SELF-CONFIGURATION |
| 4D | NN | TAGGED OVERLAPPED COMMANDS (NN=QUEUE TAG) |
| 4E | 00 | OVAERLAPPED COMMANDS ATTEMPTED |
| 53 | 00 | MEDIA LOAD OR EJECTED FAILED |
| 53 | 02 | MEDIUM REMOVAL PREVENTED |
| 55 | 00 | SYSTEM RESOURCE FAILURE |
| 57 | 00 | UNABLE TO RECOVER TABLE-OF-CONTENTS |
| 5A | 00 | OPERATOR REQUEST OR STATE CHANGE INPUT |
| 5A | 01 | OPERATOR MEDIUM REMOVAL REQUEST |
| 5B | 00 | LOG EXCEPTION |
| 5B | 01 | THRESHOLD CONDITION MET |
| 5B | 02 | LOG COUNTER AT MAXIMUM |
| 5B | 03 | LOG LIST CODES EXHAUSTED |
| 5D | 00 | FAILURE PREDICTION THRESHOLD EXCEEDED - Predicted Logical Unit Failure |
| 5D | 01 | FAILURE PREDICTION THRESHOLD EXCEEDED - Predicted Media Failure |
| 5D | FF | FAILURE PREDICTION THRESHOLD EXCEEDED (FALSE) |
| 5E | 00 | LOW POWER CONDITION ON |
| 5E | 01 | IDLE CONDITION ACTIVATED BY TIMER |
| 5E | 02 | STANDBY CONDITION ACTIVATED BY COMMAND |
| 5E | 03 | IDLE CONDITION ACTIVATED BY COMMAND |
| 5E | 04 | STANDBY CONDITION ACTIVATED BY COMMAND |
| 63 | 00 | END OF USER AREA ENCOUNTERED ON THIS TRACK |
| 63 | 01 | PACKET DOES NOT FIT IN AVAILABLE SPACE |
| 64 | 00 | ILLEGAL MODE FOR THIS TRACK |
| 65 | 00 | VOLTAGE FAULT |
| 73 | 00 | CD CONTROL ERROR |
| 80 | xx | VENDOR SPECIFIC |

Write Errors

| ASC | ASCQ | Description |
|-----|------|--|
| 00 | 00 | NO ADDITIONAL SENSE INFORMATION |
| 00 | 06 | I/O PROCESS TERMINATED, PLAY OPERATION ABORTED |
| 00 | 11 | AUDIO PLAY OPERATION IN PROGRESS |

| | | |
|----|----|--|
| 00 | 12 | AUDIO PLAY OPERATION PAUSED |
| 00 | 13 | AUDIO PLAY OPERATION SUCCESSFULLY |
| 00 | 14 | AUDIO PLAY OPERATION STOPPED DUE TO ERRPOR |
| 00 | 15 | NO CURRENT AUDIO STATUS TO RETURN |
| 02 | 00 | NO SEEK COMPLETE |
| 04 | 00 | LOGICAL UNIT NOT READY, CAUSE NOT REPORTABLE |
| 04 | 01 | LOGICAL UNIT IS IN PROCESS OF BECOMING READY |
| 04 | 02 | LOGICAL UNIT NOT READY, INITIALIZING CMD. REQUIRED |
| 04 | 03 | LOGICAL UNIT NOT READY, MANUAL INTERVENTION REQUIRED |
| 04 | 04 | LOGICAL UNIT NOT READY, FORMAT IN PROGRESS |
| 04 | 07 | LOGICAL UNIT NOT READY, OPERATION IN PROGRESS |
| 04 | 08 | LOGICAL UNIT NOT READY, LONG WRITE IN PROGRESS |
| 05 | 00 | LOGICAL UNIT DOES NOT RESPOND TO SELECTION |
| 06 | 00 | NO REFERENCE POSITION FOUND |
| 08 | 00 | LOGICAL UNIT COMMUNICATION FAILURE |
| 08 | 01 | LOGICAL UNIT COMUUNICATION TIME-OUT |
| 08 | 02 | LOGICAL UNIT COMMUNICATION PARITY ERROR |
| 08 | 03 | LOGICAL UNIT COMMUNICATION CRC ERROR (ULTRA-DMA/32) |
| 09 | 00 | TRACK FOLLOWING ERROR |
| 09 | 01 | TRACKING SERVO FAILURE |
| 09 | 02 | FOCUS SERVO FAILURE |
| 09 | 03 | SPINDLE SERVO FAILURE |
| 0A | 00 | ERROR LOG OVERFLOW |
| 0B | 00 | WARNING |
| 0B | 01 | WARNING-SPECIFIED TEMPERATURE EXCEEDED |
| 0B | 02 | WARNING-ENCLOSURE DEGRADED |
| 0C | 00 | WRITE ERROR |
| 0C | 02 | WRITE ERROR-RECOVERED WITH AUTO REALLOCATION |
| 0C | 03 | WRITE ERROR-RECOMMEND REASSIGNMENT |
| 0C | 07 | WRITE ERROR-RECOVERY NEEDED |
| 0C | 08 | WRITE ERROR-RECOVERY FAILED |
| 0C | 09 | WRITE ERROR-LOSS OF STREAMING |
| 0C | 0A | WRITE ERROR-PADDING BLOCKS ADDED |
| 11 | 00 | UNRECOVERED READ ERROR |
| 11 | 06 | CIRC UNRECOVERED ERROR |
| 15 | 00 | RANDOM POSITIONING ERROR |
| 15 | 01 | MECHANICAL POSITIONING ERROR |
| 15 | 02 | POSITIONING ERROR DETECTED BY READ OF MEDIUM |
| 16 | 00 | DATA SYNCHRONIZATION MARK ERROR |
| 16 | 01 | DATA SYNC ERROR-DATA REWRITTEN |
| 16 | 02 | DATA SYNC ERROR-RECOMMEND REWRITE |
| 16 | 03 | DATA SYNC ERROR-DATA ATUO-REALLOCATED |
| 16 | 04 | DATA SYNC ERROR-RECOMMEND REASSIGNMENT |
| 17 | 00 | RECOVERED DATA WITH NO ERROR CORRECTION APPLIED |
| 17 | 01 | RECOVERED DATA WITH RETRIES |
| 17 | 02 | RECOVERED DATA WITH POSITIVE HEAD OFFSET |
| 17 | 03 | RECOVERED DATA WITH NEGATIVE HEAD OFFSET |
| 17 | 04 | RECOVERED DATA WITH RETRIES AND/OR CIRC APPLIED |
| 17 | 05 | RECOVERED DATA USING PREVIOUS SECTOR ID |
| 17 | 06 | RECOVERED DATA WITHOUT ECC - DATA AUTO-REALLOCATED |
| 17 | 07 | RECOVERED DATA WITHOUT ECC - RECOMMEND REASSIGNMENT |
| 17 | 08 | RECOVERED DATA WITHOUT ECC - RECOMMEND REWRITE |
| 17 | 09 | RECOVERED DATA WITHOUT ECC - DATA REWRITTEN |
| 18 | 00 | RECOVERED DATA WITH ERROR CORRECTION APPLIED |
| 18 | 01 | RECOVERED DATA WITH ERROR CORR. & RETRIES APPLIED |
| 18 | 02 | RECOVERED DATA - DATA AUTO-REALLOCATED |
| 18 | 03 | RECOVERED DATA WITH CIRC |
| 18 | 04 | RECOVERED DATA WITH L-EC |
| 18 | 05 | RECOVERED DATA - RECOMMEND REASSIGNMENT |
| 18 | 06 | RECOVERED DATA - RECOMMEND REWRITE |
| 18 | 07 | RECOVERED DATA WITH ECC - DATA REWRITTEN |
| 19 | 00 | DEFECT LIST NOT ERROR |
| 19 | 01 | DEFECT LIST NOT AVAILABLE |
| 19 | 02 | DEFECT LIST ERROR IN PRIMARY LIST |
| 19 | 03 | DEFECT LIST ERROR IN GROWN LIST |
| 1A | 00 | PARAMETER LIST LENGTH ERROR |
| 1B | 00 | SYNCHRONOUS DATA TRANSFER ERROR |
| 1C | 00 | DEFECT LIST NOT FOUND |
| 1C | 01 | PRIMARY DEFECT LIST NOT FOUND |
| 1C | 02 | GROWN DEFECT LIST NOT FOUND |
| 1D | 00 | MISCOMPARE DURING VERIFY OPERATION |
| 20 | 00 | INVALID COMMAND OPERATION CODE |
| 21 | 00 | LOGICAL BLOCK ADDRESS OUT OF RANGE |
| 21 | 02 | INVALID ADDRESS FOR WRITE |
| 24 | 00 | INVALID FIELD IN CDB |
| 25 | 00 | LOGICAL UNIT NOT SUPPORTED |
| 26 | 00 | INVALID FIELD IN PARAMETER LIST |
| 26 | 01 | PARAMETER NOT SUPPORTED |
| 26 | 02 | PARAMETER VALUE INVALID |

| | | |
|----|----|---|
| 26 | 03 | THRESHOLD PARAMETERS NOT SUPPORTED |
| 26 | 04 | INVALID RELEASE OF ACTIVE PERSISTENT RESERVATION |
| 27 | 00 | WRITE PROTECTED |
| 27 | 01 | HARDWARE WRITE PROTECTED |
| 27 | 02 | LOGICAL UNIT SOFTWARE WRITE PROTECTED |
| 27 | 03 | ASSOCIATED WRITE PROTECT |
| 27 | 04 | PERSISTENT WRITE PROTECT |
| 27 | 05 | PERSISTENT WRITE PROTECT |
| 27 | 06 | CONDITIONAL WRITE PROTECT |
| 28 | 00 | NOT READY TO READY CHANGE, MEDIUM MAY HAVE CHANGED |
| 29 | 00 | POWER ON, RESET, OR BUS DEVICE RESET OCCURRED |
| 29 | 01 | POWER ON OCCURRED |
| 29 | 02 | SCSI BUS RESET OCCURRED |
| 29 | 03 | BUS DEVICE RESET FUNCTION OCCURRED |
| 29 | 04 | DEVICE INTERNAL RESET |
| 2A | 00 | PARAMETERS CHANGED |
| 2A | 01 | MODE PARAMETERS CHANGED |
| 2A | 02 | LOG PARAMETERS CHANGED |
| 2A | 03 | RESERVATIONS PREEMPTED |
| 2B | 00 | COPY CANNOT EXECUSE SINCE HOST CANNOT DISCONNECT |
| 2C | 00 | COMMAND SEQUENCE ERROR |
| 28 | 00 | NOT READY TO READY CHANGE, MEDIUM MAY HAVE CHANGED |
| 29 | 00 | POWER ON, RESET, OR BUS DEVICE RESET OCCURRED |
| 2A | 00 | PARAMETERS CHANGED |
| 2A | 01 | MODE PARAMETERS CHANGED |
| 2C | 00 | COMMAND SEQUENCE ERROR |
| 2C | 03 | CURRENT PROGRAM AREA IS NOT EMPTY |
| 2C | 04 | CURRENT PROGRAM AREA IS EMPTY |
| 2C | 05 | PERSISTENT PREVENT CONFLICT |
| 2E | 00 | INSUFFICIENT TIME FOR OPERATION |
| 2F | 00 | COMMANDS CLEARED BY ANOTHER INITIATOR |
| 30 | 00 | INCOMPATIBLE MEDIUM INSTALLED |
| 30 | 01 | CANNOT READ MEDIUM - UNKNOWN FORMAT |
| 30 | 02 | CANNOT READ MEDIUM - INCOMPATIBLE FORMAT |
| 30 | 05 | CANNOT WRITE MEDIUM - INCOMPATIBLE FORMAT |
| 30 | 06 | CANNOT FORMAT MEDIUM - INCOMPATIBLE MEDIUM |
| 30 | 08 | CANNOT WRITE - APPLICATION CODE MISMATCH |
| 30 | 09 | CURRENT SESSION NOT FIXATED FOR APPEND |
| 31 | 00 | MEDIUM FORMAT CORRUPTED |
| 31 | 01 | FORMAT COMMAND FAILED |
| 32 | 00 | NO DEFECT SPARE LOCATION AVAILABLE |
| 32 | 01 | DEFECT LIST UPDATE FAILURE |
| 35 | 00 | ENCLOSURE SERVICES FAILURE |
| 35 | 01 | UNSUPPORTED ENCLOSURE FUNCTION |
| 35 | 02 | ENCLOSURE SERVICES UNAVAILABLE |
| 35 | 03 | ENCLOSURE SERVICES TRANSFER FAILURE |
| 35 | 04 | ENCLOSURE SERVICES TRANSFER REFUSED |
| 37 | 00 | ROUNDED PARAMETER |
| 39 | 00 | SAVING PARAMETERS NOT SUPPORTED |
| 3A | 00 | MEDIUM NOT PRESENT |
| 3A | 01 | MEDIUM NOT PRESENT - TRAY CLOSED |
| 3A | 02 | MEDIUM NOT PRESENT - TRAY OPEN |
| 3D | 00 | INVALID BITS IN IDENTIFY MESSAGE |
| 3E | 00 | LOGICAL UNIT HAS NOT SELF-CONFIGURED YET |
| 3E | 01 | LOGICAL UNIT FAILURE |
| 3E | 02 | TIMEOUT ON LOGICAL UNIT |
| 3F | 00 | TARGET OPERATING CONDITIONS HAVE CHANGED |
| 3F | 01 | MICROCODE HAS BEEN CHANGED |
| 3F | 02 | CHANGED OPERATING DEFINITION |
| 3F | 03 | INQUIRY DATA HAS CHANGED |
| 40 | NN | DIAGNOSTIC FAILURE ON COMPONENT NN (80H-FFH) |
| 43 | 00 | MESSAGE ERROR |
| 44 | 00 | INTERNAL TARGET FAILURE |
| 45 | 00 | SELECT OR RESELECT FAILURE |
| 46 | 00 | UNSUCCESSFUL SOFT RESET |
| 47 | 00 | SCSI PARITY ERROR |
| 48 | 00 | INITIATOR DETECTED ERROR MESSAGE RECEIVED |
| 49 | 00 | INVALID MESSAGE ERROR |
| 4A | 00 | COMMAND PHASE ERROR |
| 4B | 00 | DATA PHASE ERROR |
| 4C | 00 | LOGICAL UNIT FAILED SELF-CONFIGURATION |
| 4D | NN | TAGGED OVERLAPPED COMMANDS (NN=QUEUE TAG) |
| 4E | 00 | OVAERLAPPED COMMANDS ATTEMPTED |
| 51 | 00 | ERASE FAILURE |
| 51 | 01 | ERASE FAILURE - Incomplete erase operation detected |
| 53 | 00 | MEDIA LOAD OR EJECT FAILED |
| 53 | 02 | MEDIUM REMOVAL PREVENTED |
| 55 | 00 | SYSTEM RESOURCE FAILURE |
| 57 | 00 | UNABLE TO RECOVER TABLE-OF-CONTENTS |

| | | |
|----|----|---|
| 5A | 00 | OPERATOR REQUEST OR STATE CHANGE INPUT |
| 5A | 01 | OPERATOR MEDIUM REMOVAL REQUEST |
| 5A | 02 | OPERATOR SELECTED WRITE PROTECT |
| 5A | 03 | OPERATOR SELECTED WRITE PERMIT |
| 5B | 00 | LOG EXCEPTION |
| 5B | 01 | THRESHOLD CONDITION MET |
| 5B | 02 | LOG COUNTER AT MAXIMUM |
| 5B | 03 | LOG LIST CODES EXHAUSTED |
| 5D | 00 | FAILURE PREDICTION THRESHOLD EXCEEDED - |
| 5D | 01 | FAILURE PREDICTION THRESHOLD EXCEEDED - Predicted Media Failure |
| 5D | 03 | FAILURE PREDICTION THRESHOLD EXCEEDED - Predicted Spare Area Exhaustion |
| 5D | FF | FAILURE PREDICTION THRESHOLD EXCEEDED (FALSE) |
| 5E | 00 | LOW POWER CONDITION ON |
| 5E | 01 | IDLE CONDITION ACTIVATED BY TIMER |
| 5E | 02 | STANDBY CONDITION ACTIVATED BY COMMAND |
| 5E | 03 | IDLE CONDITION ACTIVATED BY COMMAND |
| 5E | 04 | STANDBY CONDITION ACTIVATED BY COMMAND |
| 63 | 00 | END OF USER AREA ENCOUNTERED ON THIS TRACK |
| 64 | 00 | ILLEGAL MODE FOR THIS TRACK |
| 64 | 01 | INVALID PACKET SIZE |
| 65 | 00 | VOLTAGE FAULT |
| 72 | 00 | SESSION FIXATION ERROR |
| 72 | 01 | SESSION FIXATION ERROR WRITING LEAD-IN |
| 72 | 02 | SESSION FIXATION ERROR WRITING LEAD-OUT |
| 72 | 03 | SESSION FIXATION ERROR - INCOMPATIBLE TRACK IN SESSION |
| 72 | 04 | EMPTY OR PARTIALLY WRITTEN RESERVED TRACK |
| 72 | 05 | NO MORE RZONE RESERVATIONS ARE ALLOWED |
| 73 | 00 | CD CONTROL ERROR |
| 73 | 01 | POWER CALIBRATION AREA ALMOST FULL |
| 73 | 02 | POWER CALIBRATION AREA IS FULL |
| 73 | 03 | POWER CALIBRATION AREA ERROR |
| 73 | 04 | PROGRAM MEMORY AREA UPDATE FAILURE |
| 73 | 05 | PROGRAM MEMORY AREA/RMA IS FULL |
| 73 | 06 | PROGRAM MEMORY AREA/RMA IS (almost) FULL |
| B6 | 00 | MEDIA LOAD/EJECT MECHANISM FAILED |
| B9 | 00 | PLAY OPERATION ABORTED |
| 80 | FF | VENDOR SPECIFIC |

Specifications

| | |
|---------------------|---|
| DVD Recorder Drive: | DVD+R/RW/DL CD-R/RW Recorder |
| Power Source: | 115V/230V 50-60Hz switchable power supply |
| Weight: | 58 pounds (each) |
| Dimensions: | 7.48" (W) x 16.75" (D) x 24.5" (H) |
| Power supply: | 400W (each) |
| Environment: | Temperature: 40°C (104°F) / 5°C (41°F) Humidity: 20% - 80% |

Supported Formats

| | | |
|------------------------------|-----|---|
| Recording format | CD | CD-ROM Mode 1, CD-ROM XA Mode 2 (form 1, form 2), Photo CD, CD-DA (Audio CD), CD-Extra, CD-R, CD-RW |
| | DVD | DVD-ROM, DVD+R/RW/DL, DVD-VIDEO |
| Recording capacity (nominal) | CD | 700MB |
| | DVD | 4.7GB for General DVD 8.3GB for Dual Layer |
| Applicable media | CD | CD-R, CD-RW |
| | DVD | DVD+R, DVD+RW, DVD+R DL |

Firmware Updates

Occasionally it may be necessary to load updated firmware on to the DVD Premium Pro Series duplicator. Only those firmware versions recommended and provided by Microboards Technical Support for this specific product should be installed. Installation of an incorrect firmware on any Microboards Technology product may result in any remaining warranty being voided.

Technical Support

For technical questions or support issues, contact Microboards Technology technical support:

United States

PH: 952-556-1639

FAX: 952-556-1628

support@microboards.comwww.microboards.com**Europe**

PH: +44 (0) 845 230 7800

www.microboards.co.uk**Japan**

PH: 03-3561-2266

www.microboards.co.jp

Please have the Model and Serial Number of your duplicator available when contacting Technical Support.



Any unauthorized modification to this equipment may result in the revocation by the FCC of the user's authority to operate this equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and antenna
- Connect the equipment into an outlet on a circuit different than that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help



This product is in conformity with the EMC Directive (89/336/EEC) through compliance with the following European standards: EN 55022, EN 55024. The CE mark has been affixed in accordance with the CE Marking Directive 93/68/EEC.

Canadian Department of Communications (DOC) Statement

This Class B digital apparatus complies with the Canadian ICES-003 Issue 4:2004. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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