



SAMSUNG

**COMBO DRIVE
SM-316**

User's Guide

FCC Compliance

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.

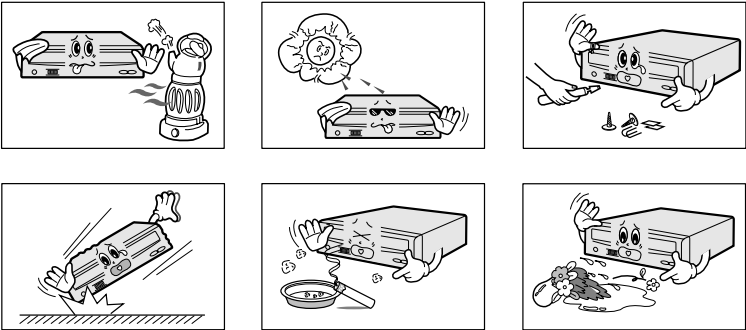
These limits are designed to provide reasonable protection against harmful interference in a residential installation.

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:

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

Safety Precautions

The following diagrams illustrate the precautions to be taken when using your COMBO drive.



★ Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

You must not use the drive in any manner other than that specified in this guide.

CAUTION Do not attempt to repair the COMBO drive yourself. Contact your dealer or local SAMSUNG representative for all repairs. If you make any adjustments or perform any operations other than those specified in this guide, you run the risk of exposure to hazardous radiation. Avoid exposing your eyes or skin to direct or scattered radiation.

WARRANTY Please refer to the Samsung limited warranty statements.

- Precautions**
1. To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.
 2. Always check each disc for cracks before using it. If there are cracks on the surfaces, especially around the border of the center hole, we recommend that you make a copy of the disc immediately and then stop using it. If you continue using the disc, it will probably develop more cracks and eventually cause irreparable damage.
 3. Do not use poor quality discs:
 - From unknown sources
 - Without any copyright
 - Scratched or damaged in any way

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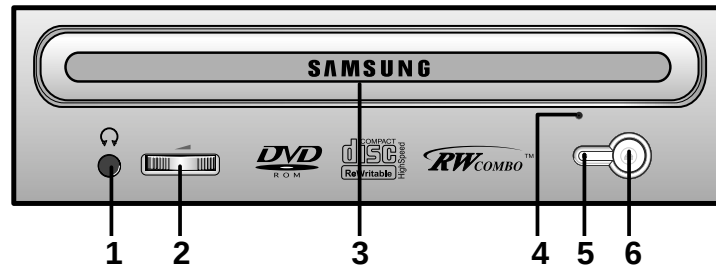
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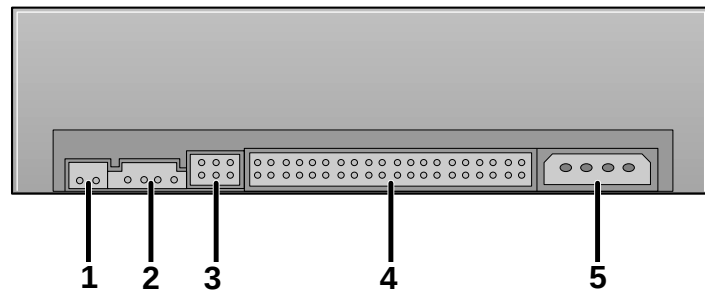
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* All product names mentioned in this document are trademarks or registered trademarks of their respective owners.

Your Combo Drive



1. Earphone connection terminal
2. Volume control
3. Disc compartment
4. Emergency eject hole (if the compartment does not open when you press the Eject button, insert a pin or unfolded paper clip in the hole and push firmly)
5. Indicator light (when it is green, a disc is being read or recorded)
6. Eject button



1. Digital output terminal
2. Sound output terminal
3. Master/slave select terminal
4. Interface terminal
5. Power terminal

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Upgrading the Firmware Flash Memory

The product firmware can be upgraded by downloading the updated file from the following Web site:

<http://www.samsungodd.com>
www.samsungelectronics.com

System Requirements

Before you install the COMBO drive, we strongly recommend that you check that your setup meets the system requirements listed below.

Item	Description
Computer	Intel Pentium II 300MHz/Celeron 333A(or higher), 32 MB of RAM (or higher) with an IDE interface
Free expansion unit	5.25 inch
Disk space	700 MB minimum
Windows version	Windows 95/98/2000/ME/NT4.0 OSR2 (or higher) (For Windows NT, we recommend Service Pack2, and Version is over 4.00.1381)
MS-DOS	5.0 or higher (For MS-DOS, The CD-R/CD-RW driver can only read a disc without premaster Software.)
DVD Video playback	PC with Windows 95/98/2000/ME/XP/NT4.0 OSR2 DVD-Video playback software and appropriate hardware (the Power DVD MPEG software is included in the COMBO drive package)

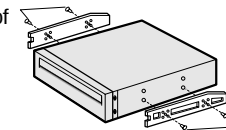
Installing the COMBO Drive

To install your COMBO drive in the PC, proceed as follows.

- 1 Make sure that the PC is powered off and disconnected from any power source.

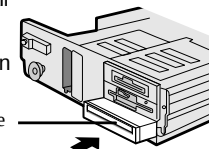
- 2 If necessary, attach a horizontal bracket to both sides of the drive.

- Use of the brackets depends on your computer model; you can purchase these accessories separately from your computer dealer.



- 3 Remove the cover from a free expansion slot and install the COMBO drive, as shown in the illustration.

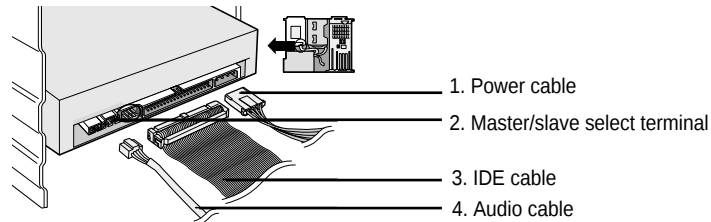
- If you have no free expansion slot, install the drive in place of the diskette drive.



COMBO drive

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Connecting the Cables



1 Connecting the power cable

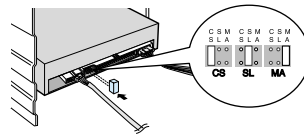
The 4-pin power cable from the internal power unit of your computer must be connected to the power terminal on the rear of the COMBO drive.

2 Installing a jumper on the master/slave select terminal

Install the jumper in the correct position on the terminal:

MA to use the device in the master mode
SL to use the device in the slave mode
CS to control the device via a CSEL host interface signal

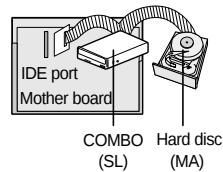
See Step 3 for further details.



3 Connecting the IDE cable

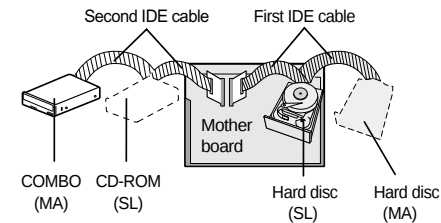
Two configurations are possible.

- The COMBO drive is the only IDE device in addition to the hard disc.



Install the jumper in the SL position (Slave).
Connect the 40-pin flat IDE cable from the IDE port on the mother board, first to the COMBO drive and then to the hard disc.

- You already have an additional IDE device installed in your computer.



Install the jumper in the MA position (Master).

Connect the 40-pin flat IDE cable from a second IDE port on the mother board directly to the COMBO drive or first to another additional IDE drive and then to the COMBO drive.

4 Connecting the audio cable from a sound card

Connect the 4-pin audio cable between the sound output terminal on the COMBO drive and the audio input terminal on the sound card.

Installing the CD Record Utility

To record data on a CD-R or CD-RW disc in the COMBO drive, you must first install the CD record utility. For compatibility reasons, you are recommended to uninstall any existing software of the same type before installing this utility.

- 1** Insert the disc supplied with the COMBO drive in the drive.
- 2** Follow the instructions displayed on the screen to install the utility.
Refer to the separate utility documentation for further details.
- 3** Store the utility disc in a safe place.

Installing the Device Driver

You do not need to install an additional device driver for Windows 95/98/2000/ME, Windows NT4.0, as the default Windows device driver is used.

The SAMSUNG device driver enables discs in the COMBO drive to be read but not recorded in an MS-DOS environment; the driver is located in the D driver folder on the CD record utility disc.

Setting Up the Device Driver

◆ Automatic Setup

- 1** Insert the setup diskette in the diskette drive and change the directory to A:, where A: is the diskette drive.
To do so, type **A:** after the **C:** prompt and press **[Enter]**.
- 2** Type **CDSETUP** and press **[Enter]**.
- 3** Reboot the computer.

◆ Manual Setup

- 1** Make the **C:\SAMSUNG** directory.
- 2** Copy the files from the diskette to the **C:\SAMSUNG** directory.
To do so, type **COPY A:.* C:\SAMSUNG** after the **C:** prompt and press **[Enter]**.
- 3** Edit the **CONFIG.SYS** file.
Add the **DEVICE=C:\SAMSUNG\SSCDROM.SYS /D:SSCD000 /V** entry.

```
LAST DRIVE = Z
.....
DEVICE = C:\SAMSUNG\SSCDROM.SYS /D:SSCD000 /V
```

- 4** Edit the **AUTOEXEC.BAT** file.
Add the **C:\SAMSUNG\MSCDEX /D:SSCD000** entry.

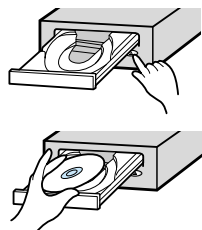
```
.....
C:\SAMSUNG\MSCDEX /D:SSCD000
```

- 5** Reboot the computer.

Using the COMBO Drive

To play audio or video CDs and/or DVDs in your COMBO drive, proceed as follows.

- 1** Push the power button and boot the computer.
- 2** After booting the computer, open the disc compartment by pressing the Eject button.
- 3** Insert the disc (CD/DVD) and close the disc compartment by pressing the Eject button.
The indicator light comes on.
- 4** Play the disc (CD/DVD).



Playing Audio CDs

Run the CD player supplied with Windows or your sound card. You can listen to the CD by connecting an earphone to the earphone connection terminal.

Playing DVDs or Video CDs

Set up and run the SOFT MPEG program supplied as an accessory.

Storing and Cleaning Your Discs

To ensure a long service life for your discs and drive, follow the precautions below when storing and cleaning your discs.

- 1** Do not place a disc in direct sunlight.
- 2** Store a disc vertically in a well-ventilated and stable location.
- 3** Do not write or attach a label on a disc.
- 4** Do not drop a disc or place heavy objects on it.



- 5** Do not touch the surface of a disc; hold it by the edges.



- 6** To clean a disc, polish lightly from the inside of the disc to the outside with a soft cotton cloth.



Solving Recording Problems

If you have any problems recording via your COMBO drive, follow the appropriate instructions below for the source that you are using.

◆ Hard Drive

- 1** Check whether the source file is corrupted.
- 2** Optimize the hard disc by using the Windows defragmenter feature:
START / PROGRAMS / ACCESSORIES / SYSTEM TOOLS / DISC DEFRAGMENTER
- 3** Decompress the hard disc if it is compressed.
- 4** Make sure that the space available on the hard disc is at least twice the size of the largest file to be recorded on the disc.
- 5** If you wish to record more than 1 000 small files:
 - First create an image file and copy the image file to the disc; refer to the section entitled "CD Creation from CD Image" in the CD record utility documentation
 - Choose the low record speed
 - Compress small files and then record them

◆ Network Drive

- 1 Copy the network drive contents to the hard disc and then from the hard disk to the COMBO drive.

◆ CD-ROM Drive

- 1 Clean the source CD, if necessary.
- 2 Create an image file and then copy the image file to the COMBO drive.

- 3 Check the CD-ROM drive record speed.

There are two recording methods :

- Low-speed (file by file)
- High-speed (transfer of an image file from the hard disc)

- 4 If the transfer speed of the CD-ROM drive is slower than the record speed, reduce the record speed.

◆ Others

- 1 Before starting to record, determine the audio and transfer speeds by using the **[Tool/System Test]** option in Easy CD Creator. Then, choose an appropriate record speed. If the audio speed is less than 2X, first create an image file on the hard disc.
- 2 To perform a record test before copying to a CD, select the **[Test/Copy]** option.
- 3 If the test fails, try recording on another disc.
- 4 The COMBO drive does not support high-speed recording to CD-RW discs above 8X. Discs above CD-RW 8X use different rewriting methods and can only be read via the COMBO drive.

Recommended Disc Types

CD-R	Fujifilm, Kodak, Maxell, Mitsubishi, Mitsui, Pioneer, Ricoh, SKC, Sony, Taiyo Yuden, TDK, Yamaha
CD-RW	Mitsubishi, Ricoh, SKC

DVD Region Protection Coding (RPC):

The RPC feature is supported on DVD players and is used with DVD-video discs (such as movies). Currently, the motion picture industry has divided the world into different regions or zones that correspond to the regional markets into which the motion picture industry releases movies. Simply put, RPC codes are placed on movies marketed throughout the world, based on the region of the world in which they are being sold. These RPC codes help control and prevent pirating of new movies into other motion picture regions prior to their true release dates within those markets.

The SM-308 COMBO drive supports RPC phase II. In the RPC-2 mode, the local code can be changed by users. RPC-2 is selected by default for the SM-308 COMBO drive. You can change the region code up to five times via an MPEG application.

Please contact your dealer or local SAMSUNG representative if you wish to change the local code more than five times.

Solving Technical Problems

Problem	Meaning / Solution
The COMBO drive is not detected by the computer. After installing the COMBO drive, the PC gets slower.	◆ Check that the power, audio and IDE cables are correctly connected to the computer. ◆ Change the IDE cable and reconnect it to the computer. Preferably, connect a second IDE cable to the COMBO drive in master mode; see page 7 for further details. ◆ Check the position of the jumper in the master/slave select terminal.
The COMBO drive is not recognized by MS-DOS.	◆ Reinstall the device driver or update it with the latest version by downloading it from the Samsung Web site.
The COMBO drive is not detected by Windows.	◆ This case may occur when there is a Windows installation problem; reinstall Windows.
No sound is heard from an audio CD.	◆ Check whether the audio cable is correctly connected to the sound output terminal on the COMBO drive and the sound card CD-IN terminal. ◆ Check that the sound card is operational. ◆ Adjust the volume control.
A CD is not read or is read too slowly.	◆ Install the latest version of the device driver. ◆ Check whether the CD is of good quality and clean it, if necessary.
The disc compartment will not open.	◆ Check that the power cable is correctly connected. ◆ Power off and disconnect the PC. Insert a pin or unfolded paper clip in the emergency hole and push firmly until the disc compartment opens.
When the MPEG software plays a Video CD, the pictures are not regular and the running speed is too slow.	◆ Adjust the size of the replay screen. ◆ After checking the display resolution, adjust it, if necessary.
The <i>Disc is not in</i> message is displayed even though a disc has been inserted.	◆ The computer may not recognize the disc if you start playback too quickly after inserting the disc. Open and close the disc compartment and try again. ◆ Clean the disc and try again.
The COMBO drive is not detected after it is connected to a sound card.	◆ The interface mode of the sound card is AT-BUS. You must therefore connect the COMBO drive to the IDE port on the PC mother board, rather than to the sound card, or install an IDE-compatible sound card.

Technical Specifications

SAMSUNG continually strives to improve its products. Both the design specifications and these user instructions are thus subject to change without notice.

Item		CD-RW	DVD / CD
Disc	Disc types supported	DVD-ROM, DVD-VIDEO, CD-DA (Audio), CD-ROM, CD-ROM XA, CD-Plus, CD-Extra, Photo-CD (Single, Multi-session), Video CD ready, Enhanced CD, CD-I/FMV, CD-R, CD-RW, CD-TEXT	
	Erasing disc types	CD-RW	
	Disc diameter	12 cm or 8 cm	
Drive Performance	Data transfer rate	CD-R: Max. 2400 KB/sec (16X), Max.1800 KB/sec (12X) Max.1200 KB/sec (8X), Max. 600 KB/sec (4X) CD-RW: Max.1500 KB/sec (10X), Max. 600 KB/sec (4X) PIO mode 4:16.6 MB/sec, DVD: 12X / CD, CD-R: 40X Multiword DMA mode2: 16.6 MB/sec, Ultra DMA mode2: 33.3 MB/sec	
	Access time (1/3 stroke)	120 ms	130 ms / 110 ms
	Data buffer capacity	2,048 KB	
	Laser	Semiconductor laser	
	Slide mechanism	Stepping motor	
	Spindle motor	Brushless motor	
	Load mechanism	Tray. DC motor (Soft Eject). Horizontal/Vertical.	
Front Panel	Error rate	Mode 1:10 ⁻¹² , Mode 2:10 ⁻⁹	
	Eject button	Auto eject or Auto inject	
	Indicator (LED)	BUSY	
	Headphone output	Stereo mini-jack (Ø 3.6 mm) 0.60±20% (vrms) 33 Ω	
Rear Panel	Volume control	Dial type	
	Required power	+5 VDC: 2.6 A (max.), +12 VDC: 1.5 A (max.)	
	Interface connector	ATAPI BUS (IDE)	
	Audio output	Line out 0.70 ± 20% (vrms): 47 KΩ	
Operating Environment	Jumper block	Device configuration jumper	
	Operations	Temperature: 5~45°C	Humidity: 10~80%
General	Storage	Temperature: -25~55°C	Humidity: 10~90%
	Dimensions	149 (W) x 42 (H) x 184 (D) mm (including bezel)	
Reliability	Net weight	770g (drive only)	
	MTBF	125 000 POH (20% duty)	