SDC-1000
Operation Manual

Seodu InChip, Inc.
Digital Media Division

Index

(1) Product Description

SDC-1000, Dolby Digital Pre-Amplifier from Seodu InChip, Inc. is designed to support today's leading-edge digital audio format, Dolby Digital (also known as AC3) and Dolby Pro Logic along with digital PCM and analog audio from PC sound cards, creating unrivaled 3D sound effect by using maximum of 6 speakers. End-users will be benefited from ultimate multimedia sound effects at very low cost, when he/she watches DVD movie, play 3D games and listening music. Fully utilizing embedded high performance audio DSP and 20 Bit ADC/DAC supporting 48 kHz sampling rate, it will allows PC users to feel and get full satisfaction which they might have gotten from expensive consumer audio.

To watch and experience thrilling DVD movies using PC, you must have DVD-ROM drive in your PC system and install a well-known S/W DVD player, such as PowerDVD, WinDVD or Cinemaster DVD, which supports S/PDIF Digital output in sound cards like SB! Live from Creative Labs. And install SDC-1000 Dolby Digital Pre-Amplifier and appropriate powered speaker kits or audio amplifier, then you can enjoy ultimate DVD movie and sound coming out of maximum 6 speakers in your small world without expensive DVD player.

To play games in 6 channel sound, install the sound card which supports Aureal 3D API version 3.0 in your system, connect its digital output to SDC-1000 system and speaker kits, and execute 3D games supported by Aureal 3D ver 3.0 API. Then you can play fantastic 3D games in multi-channel sound.

To listen and enjoy very high quality audio, connect the digital output of sound card to digital input of SDC-1000 and play audio applications like WinAMP, Windows Media Player. Then you will hear very high quality, low noise digital audio by bypassing noisy analog output path of sound cards. Also when you enable various surround effects which are usually available in high-end consumer audio, you will get exotic and nice feeling when listening music.

Allowing 4 CH analog input from modern sound cards from Creative, Yamaha, etc, SDC-1000 has no problem in fully supporting them. Even if sound card in the PC system has analog output only, end-user can still use surround modes and get multi-channel sound effects from just 2 channel analog input.

And also thanks to easy speaker mode setting, automatic speaker detection and bass management, end-users do not need all 6 speakers from the beginning. Simply start with 2 speaker system and later add and/or upgrade additional speaker sets. It's very easy way to use the system and also economical. There is no need to discard your existing speaker systems when you use SDC-1000.

Lastly but not least, without sacrifice in performance and feature compared to consumer audio products, you may use the SDC-1000 system in anywhere you want to, other than PC environment.

(2) Outside View

- **Front Panel**

  - **Buttons** and **Knob** (**Buttons** in Remocon)

(A) **POWER** Button (**Power** in Remocon Panel)
Standby Power On/Off Switch of SDC-1000

(B) **INPUT** Button (**Input** in Remocon Panel)
With every touching, inputs following will be selected

Digital Optical	: Select Optical Digital Input in rear panel
Digital Coaxial	: Select Coaxial Digital Input in rear panel
Analog Line In	: Select LINE-IN (2 CH/4 CH) Analog Input in rear panel

(C) **SURROUND** Button (**Surround** in Remocon Panel)
With every touching the button, surround audio modes following will be selected

Bypass	: Select "Bypass" mode (all surround LEDs off) which is without effect and modification to audio input
2 **Surround**	: Select Dolby Surround (Pro Logic) Dolby Digital stream will be automatically detected, decoded and played
Stereo	: Select 2 speaker (Left/Right) only mode
Music	: Select "Music" Surround mode to give better sound field effect using multiple speakers with normal stereo input. Suitable for listening music
Theater	: Select "Theater" Surround mode to give better sound field effect using multiple speakers with normal stereo input Suitable for listening music and playing game
Stadium	: Select "Stadium" Surround mode to give better sound field effect using multiple speakers with normal stereo input More intensive sound effect than "Theater" mode and suitable for playing game

Note **:** Music/Theater/Stadium surround modes will not be enabled when playing Dolby Digital

Note **:** 2 Surround and Stereo modes will only be selected when playing Dolby Digital stream.

(D) **FUNCTION** Button (**Function** in Remocon Panel)
With every touching the button and adjusting Volume Knob (▲,▼ Buttons in Remocon Panel), audio function modes following will be selected

S Delay	: Adjust surround delay in Dolby Digital and Pro Logic mode
C Delay	: Adjust center delay in Dolby Digital and Pro Logic mode
D.R.C	: Adjust dynamic range compression ratio in Dolby Digital mode

Note **:** Functions above are applicable when playing PCM or Dolby Digital, Dolby Pro Logic mode. So if you have selected surround mode like Music, Theater or Stadium, these functions will not be enabled

(E) **VOLUME** Knob (**TRIM** Adjustment) (**Volume**, ▲ ,▼ in Remocon Panel)
Master volume setting will be modified when rotating Volume Knob.
To adjust individual minute speaker level, push the Volume Knob, then with every touching, trim control modes following will be enabled

Right	: Trim Front Right speaker level by +10dB to -10 dB
Left	: Trim Front Left speaker level by +10dB to -10 dB
Center	: Trim Center speaker level by +10dB to –10 dB
Rear Right	: Trim Rear Right speaker level by +10dB to –10 dB
Rear Left	: Trim Rear Left speaker level by +10dB to –10 dB
S. Woofer	: Trim Sub Woofer speaker level by +10dB to –10 dB

(F) **TEST TONE** Button (**Test Tone** in Remocon Panel)
When **INPUT** and **FUNCTION** buttons are pressed simultaneously, system will enter Test Tone mode, in which test signal will be generated and sequenced through the order of **Front Left** – **Center** – **Front Right** – **Rear Right** – **Rear Left** – **Sub Woofer** speakers in every 2 seconds, skipping non-existing speakers. So user can correct speaker position and its level during testing by adjusting volume knob. (▲,▼ Buttons in Remocon Panel) Pressing any button again will make system come back to normal playback mode.

(G) **MUTE** Button (**Mute** in Remocon Panel)
When pressing MUTE button, signal output to Line Out will be muted.

- LED Indicators

(A) **SURROUND** LEDs
Bypass (no LED) - 2 Surround – Stereo – Music – Theater – Stadium
When pressing SURROUND button, LED will be turned on to the order above.
And if Dolby Digital stream is detected in the digital input, 2 Surround and 2 Digital LEDs will be turned on, automatically.

(B) **INPUT** LEDs
Dig. In – Ana. In
When pressing INPUT button, LED will be turned on, indicating if analog or digital input is selected.
And also character display will show current input port

d:OP	for optical digital input
d:CO	for coaxial digital input
A:In	for analog input

(C) Master VOLUME
Adjusting Volume Knob (▲,▼ Buttons in Remocon Panel) will display current master volume level.

(D) TRIM Control
When pressing VOLUME button, character display will show selected trim adjust and its setting in the order below

F-r	for front right trim control
F-L	for front left trim control
C	for center trim control
r-r	for rear right trim control
r-L	for rear left trim control
S-U	for sub woofer trim control

(E) FUNCTION
When pressing FUNCTION button, character display will show selected audio function and its setting in the order below

C-d	for center delay adjustment
S-d	for surround delay adjustment
drc	for dynamic range compression adjustment

(F) 2 Digital
Turned on automatically when Dolby Digital stream is detected

(G) 2 Pro Logic
Turned on when user selects Dolby Surround (Pro Logic) mode, or also turned on automatically when Pro Logic encoded Dolby Digital stream is detected in digital input

(H) PCM
Turned on when input signal is PCM digital input or Analog input

(I) Test Tone
Turned on when system is in Test Tone mode

(J) Error Music
Turned on when error (like disconnection) is detected in incoming digital stream

(K) Input High
Turned on when analog input signal level is too high, so producing clipping. In that case, turn down analog input level.

(L) CHARACTER DISPLAY
Displays useful information on current status, setting and input mode. Normally it will show current input selection, i.e.

d:OP	in optical digital input mode
d:CO	in coaxial digital input mode
A:In	in analog line in mode

When Dolby Digital stream is coming in, it will show incoming Dolby Digital audio format, like

3:2.L when incoming data is 5.1 channel encoded 2 Digital signal
2:0 when incoming data is L/R encoded 2 Digital signal

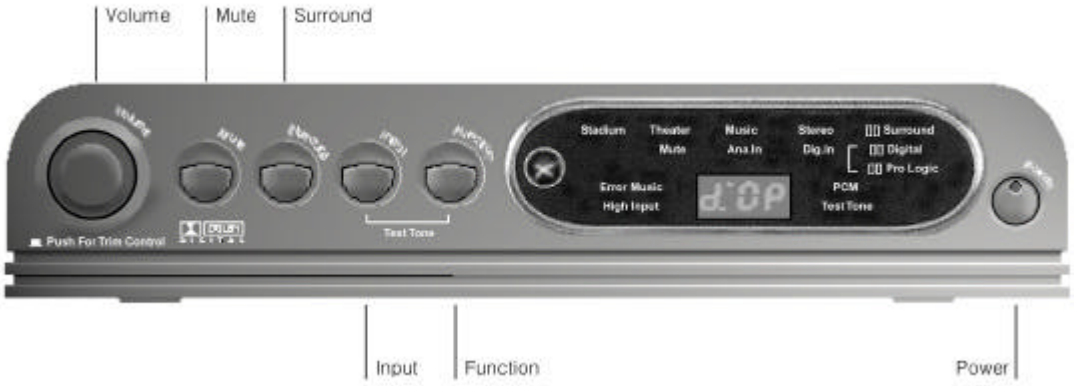
When you adjust volume knob in Volume or Function mode, it will show current setting accordingly, like

-32 when master volume level is –32 dB

When you are performing speaker test, it will show current speaker positioning in test, like

F-l when performing front left speaker test
C when performing center speaker test
F-r when performing front right speaker test
r-r when performing rear right speaker test
r-l when performing rear left speaker test

Front Panel



● Rear Panel

- DC Adapter Input

Input connector for AC-to-DC 12V adapter power supply

- Variable Line Outputs

(A) Front L/R

Left/Right stereo output connector to external power amplifier or multimedia PC speaker (with power amp) for front Left/Right line out

Note : When connecting PC multimedia speaker with Sub-Woofer to this connector, set "Front L/R Size" bit of Speaker Mode DIP SW to "1"

(B) Rear L/R

Rear Left/Right stereo output connector to external power amplifier or multimedia PC speaker (with power amp) for rear Left/Right line out

(C) Center

Center mono output connector to external power amplifier or multimedia PC speaker (with power amp) for Center line out

(D) S. Woofer

Sub Woofer mono output connector to external sub woofer amplifier

- Inputs

(A) Digital Optical

Optical S/PDIF digital input from PC Sound Card or other digital audio equipment like DVD player

(B) Digital Coaxial

Coaxial-RCA S/PDIF digital input from PC Sound Card or other digital audio equipment like DVD player

(C) Line-In

2 CH or 4 CH audio input from PC Sound Card or other audio equipment like portable CD player

- DIP Switch (Speaker Mode)

DIP switch for selecting speaker type and existence

Bit #	Definition	Up (1)	Down (0)
1	Rear Speaker	Installed	Not available
2	Front L/R Speaker Size	Full-Range Front L/R speaker	Satellite Front L/R speaker

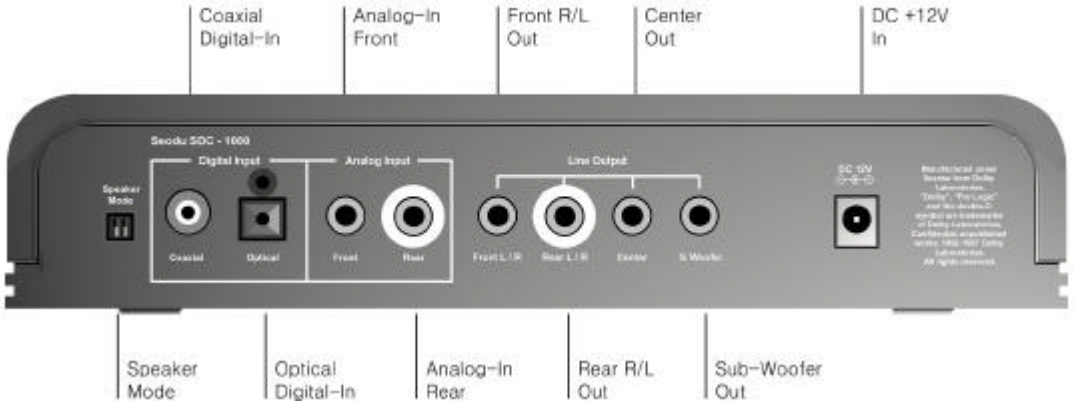
Note : "Full-Range" speaker is the speaker capable of producing wide frequency signal range of 20 Hz to 20 kHz

Note : "Satellite" speaker is the small speaker without capability of producing signal of 20 Hz to 120 Hz in low frequency range

Note : "Installed" Rear speaker means that power amplifier with speaker is connected to the Rear L/R Line Out connectors

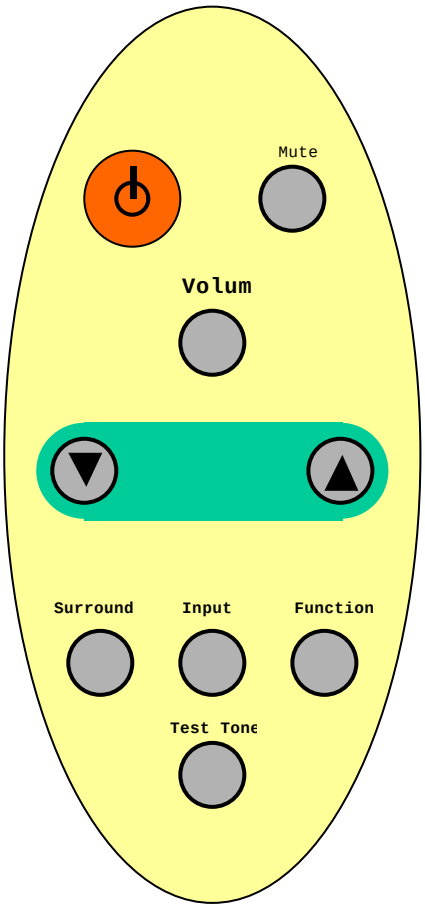
Note : Existence of Center and Sub-Woofer speakers will be automatically detected.

Rear Panel



- **Remocon**

- Power Button
Power on/off
- Mute Button
Sound output muting function
- Input Button
Input selection
- Surround Button
Surround mode selection
- Function Button
Dolby function selection
- Volume Button
Volume selection
- Up (▲) Button
Volume/Function value up
- Down (▼) Button
Volume/Function value down
- Test Tone Button
Speaker test start



(3) Installation & Connection

- Placement and Power Connect

  Place the system on your desk or any other place for easy access and connect AC-DC 12V adapter

- Input Connection

  (A) Connect the Line out of PC Sound Card to the Line In connectors of SDC-1000
  - If PC Sound Card has 2 CH stereo output only, then connect to the front Line-In of SDC-1000
  - If PC Sound Card has 4 CH output, then
    Connect front Line output of sound card to front Line In of SDC-1000
    Connect rear Line output of sound card to rear Line In of SDC-1000

  (B) If your PC Sound Card has S/PDIF Digital output, then connect them to Digital input of SDC-1000 depending on the type of connector (Optical or Coaxial-RCA)

  (C) Since SDC-1000 has two digital inputs, you may connect other digital signal source from Laser Disc Player, DVD Player to remaining digital input port of SDC-1000

  (D) Please refer the following pages for typical input connections of SDC-1000. But those are not all. You may find various applications for SDC-1000 by your own.

- Output Connection and Speaker Mode Setting

  (A) Based on availability of multimedia PC speakers and power amplifiers, connect them to the proper line output of SDC-1000 and set/reset "Speaker Mode DIP Switch" bits according to front speaker size and existence of rear speakers.

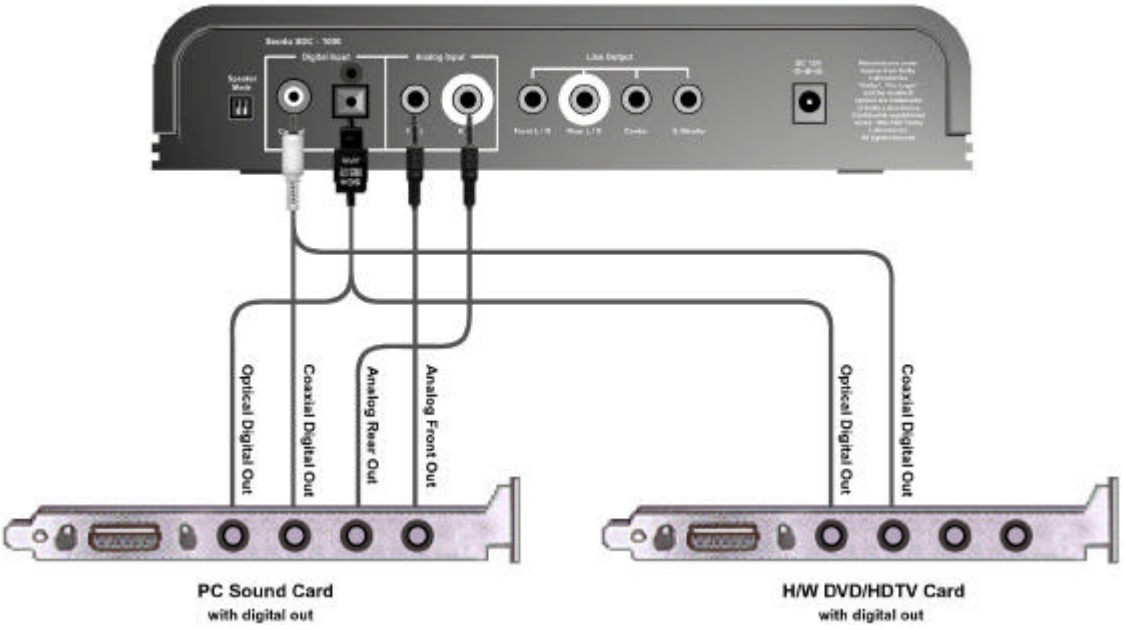
  (B) Existence of center and sub-woofer is automatically detected. So, if you have good sub-woofer amplifier, simply connect it to the Sub Woofer Line Out connector of SDC-1000. No additional configuration is needed.

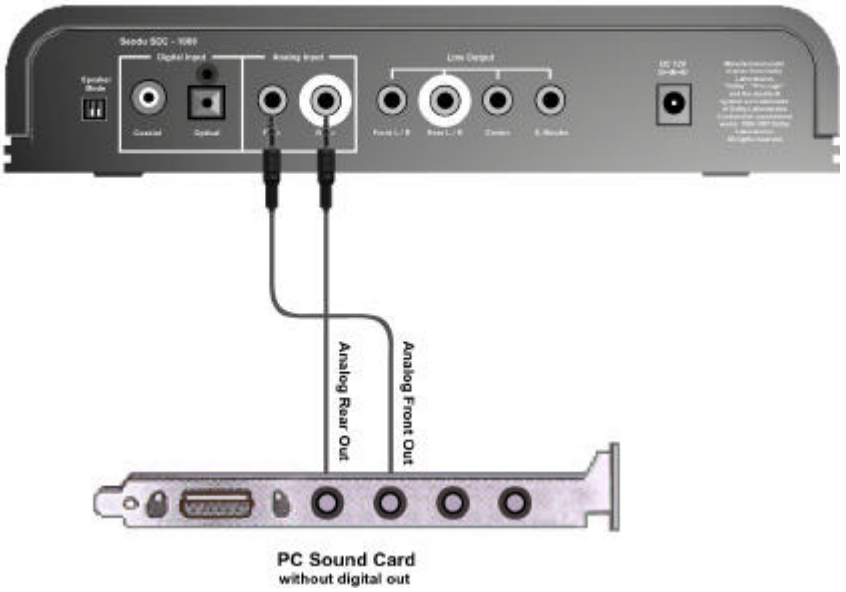
  (C) Please refer the following pages for typical speaker connections and DIP switch settings of SDC-1000. Also, those are not all. You may also find another applications for SDC-1000 by your own.

- Speaker Test

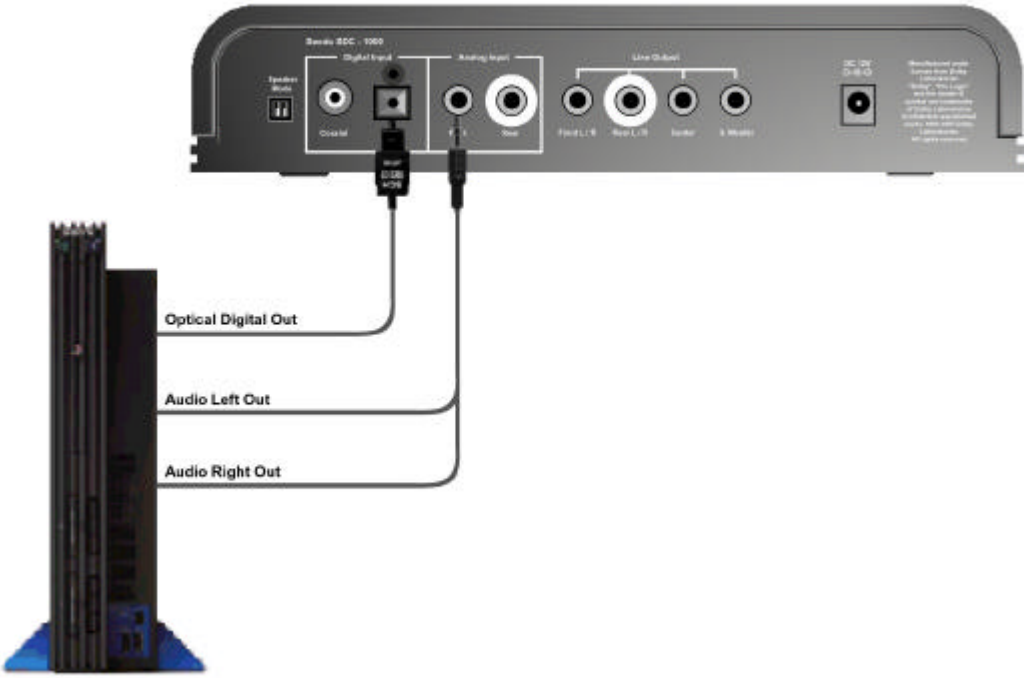
  After Power On, pressing INPUT and FUNCTION button in front panel simultaneously, or **Test Tone** in Remocon Panel, initiate speaker test mode, and verify correct speaker positioning and also adjust individual volume level if necessary.
  When everything done, press any button and return to normal operation mode.

Input Setting - I
with multimedia PC



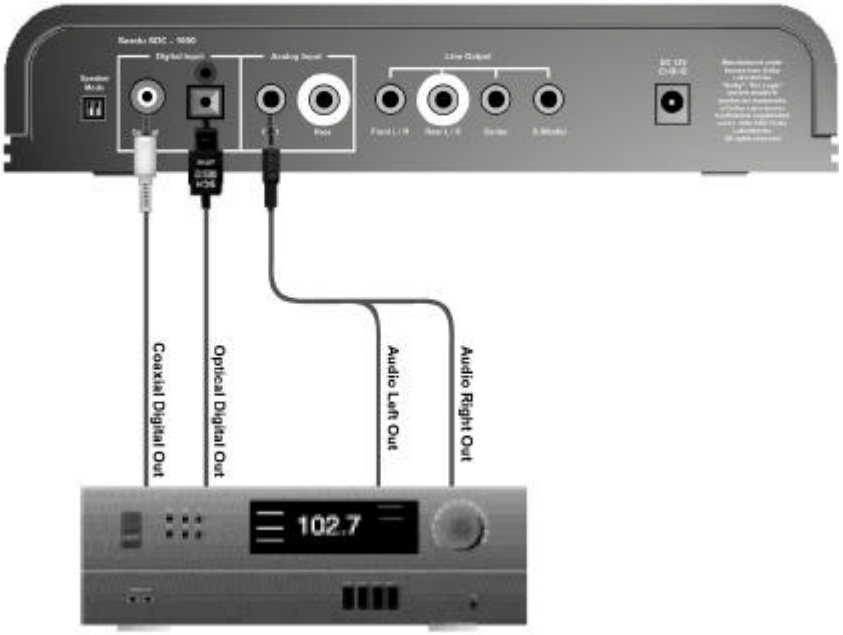


Input Setting - II
with Game



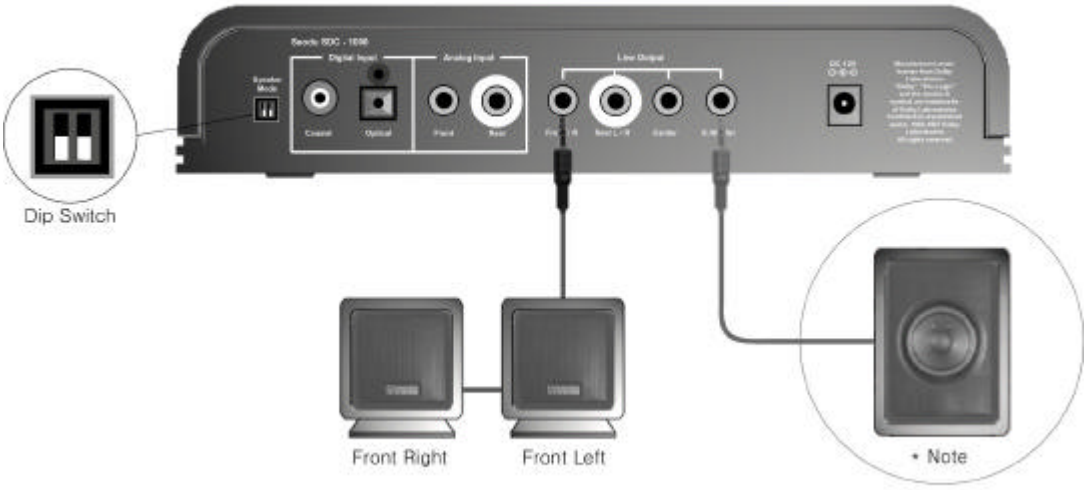
Sony Playstation II™
gaming machine

Input Setting - III
with DVD / Audio appliances



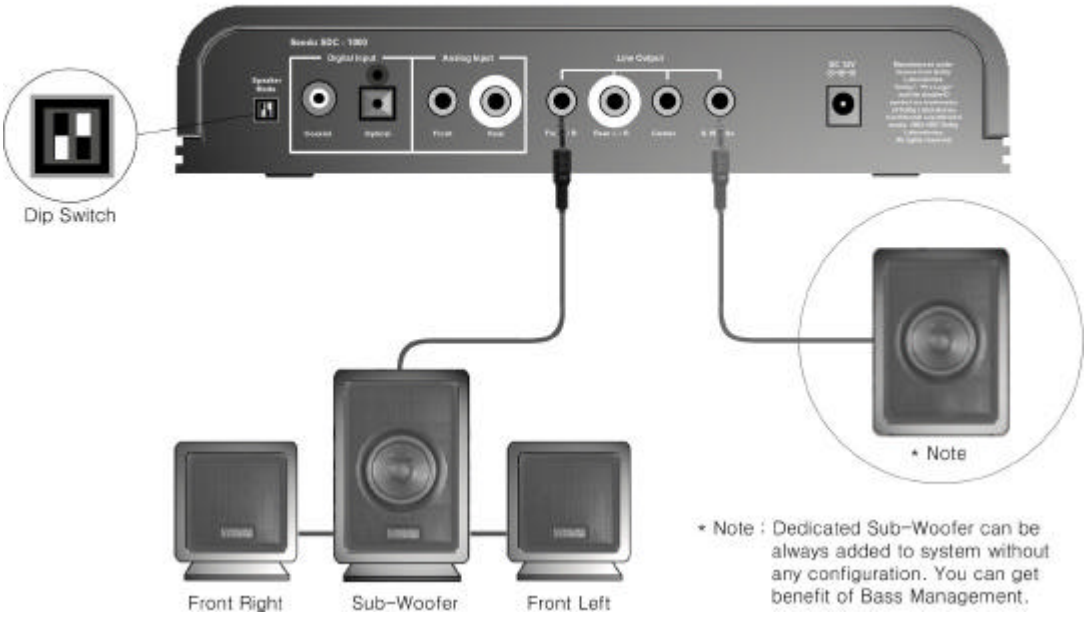
DVD Player, Portable CD Player, Boom-Box, etc

Speaker Setting - I
with 1 set of stereo multimedia speaker



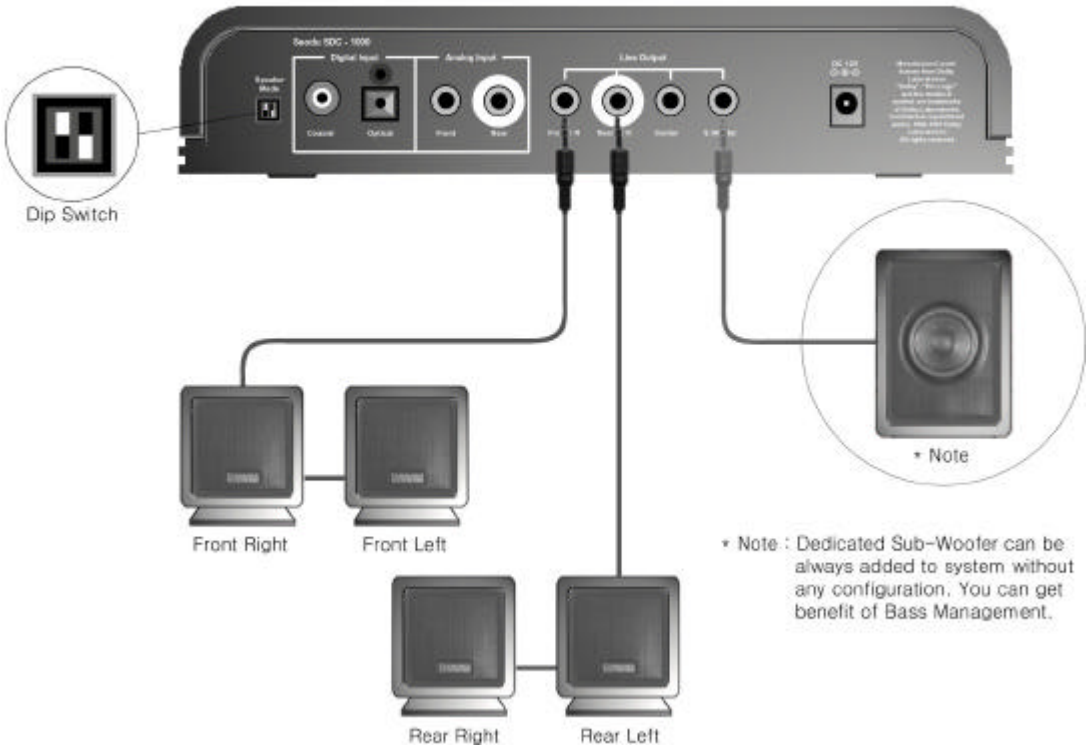
* Note : Dedicated Sub-Woofer can be always added to system without any configuration. You can get benefit of Bass Management.

Speaker Setting - II
with 1 set of stereo multimedia speaker (with woofer)



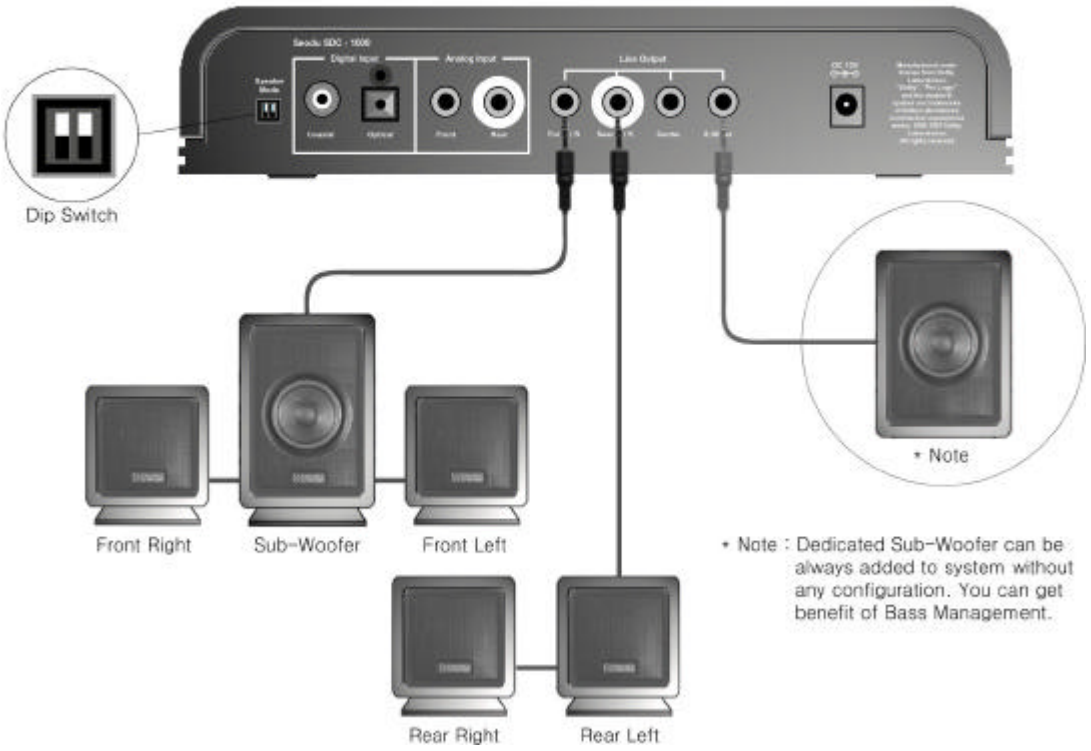
* Note : Dedicated Sub-Woofer can be always added to system without any configuration. You can get benefit of Bass Management.

Speaker Setting - III
with 2 sets of stereo multimedia speaker



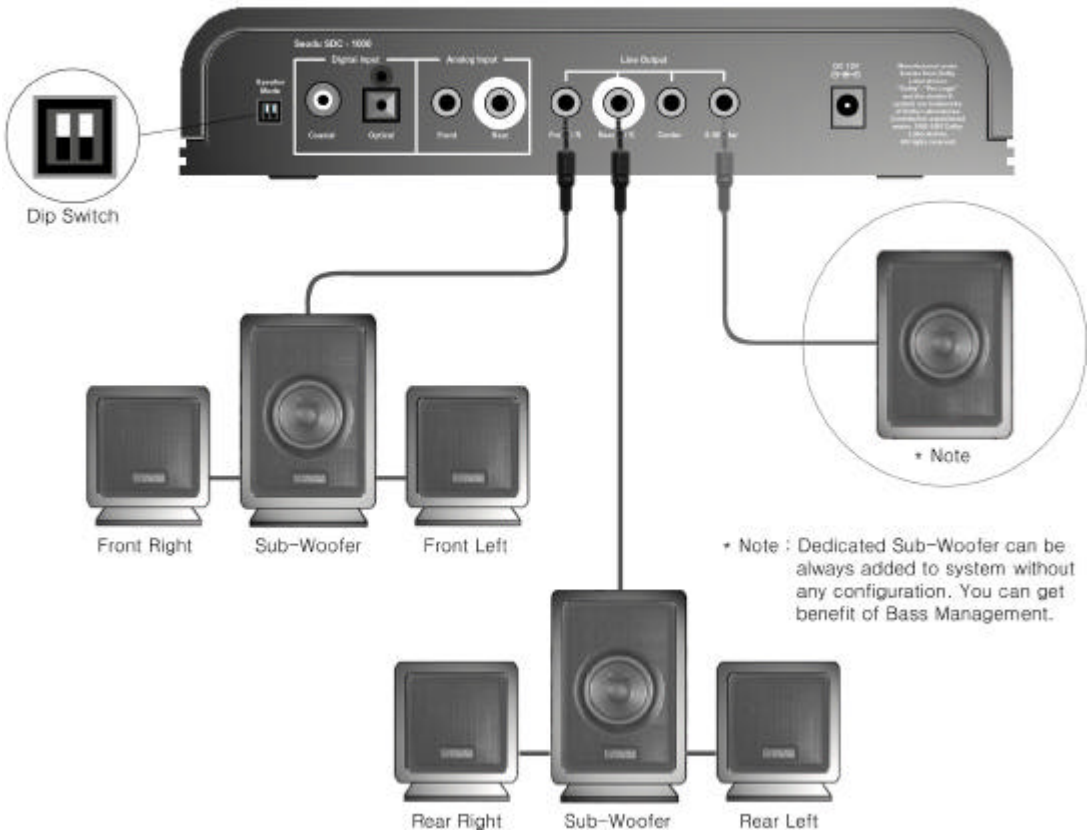
* Note : Dedicated Sub-Woofer can be always added to system without any configuration. You can get benefit of Bass Management.

Speaker Setting - IV
with 1 set of stereo multimedia speaker (with woofer) & 1 set of stereo multimedia speaker

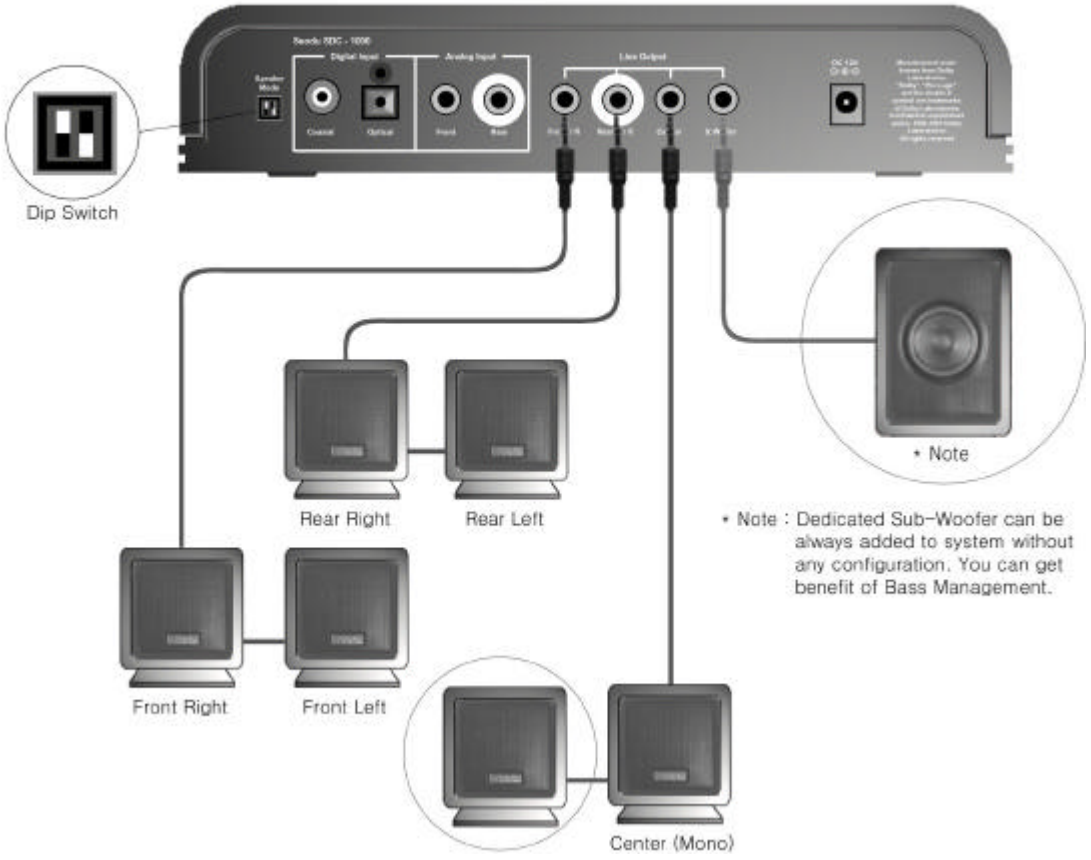


* Note : Dedicated Sub-Woofer can be always added to system without any configuration. You can get benefit of Bass Management.

Speaker Setting - V
with 2 sets of stereo multimedia speaker (with woofer)

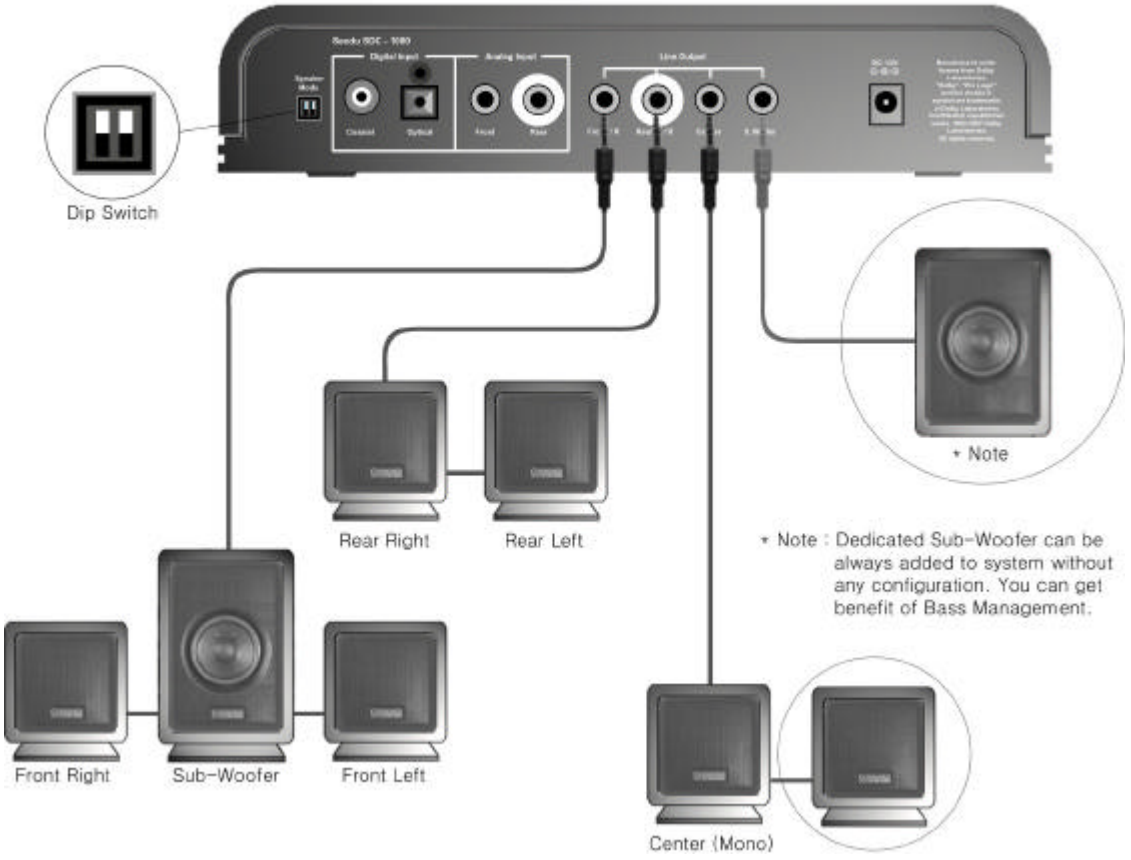


Speaker Setting - VI
with 2 sets of stereo multimedia speaker & 1 set of mono(stereo) multimedia speaker

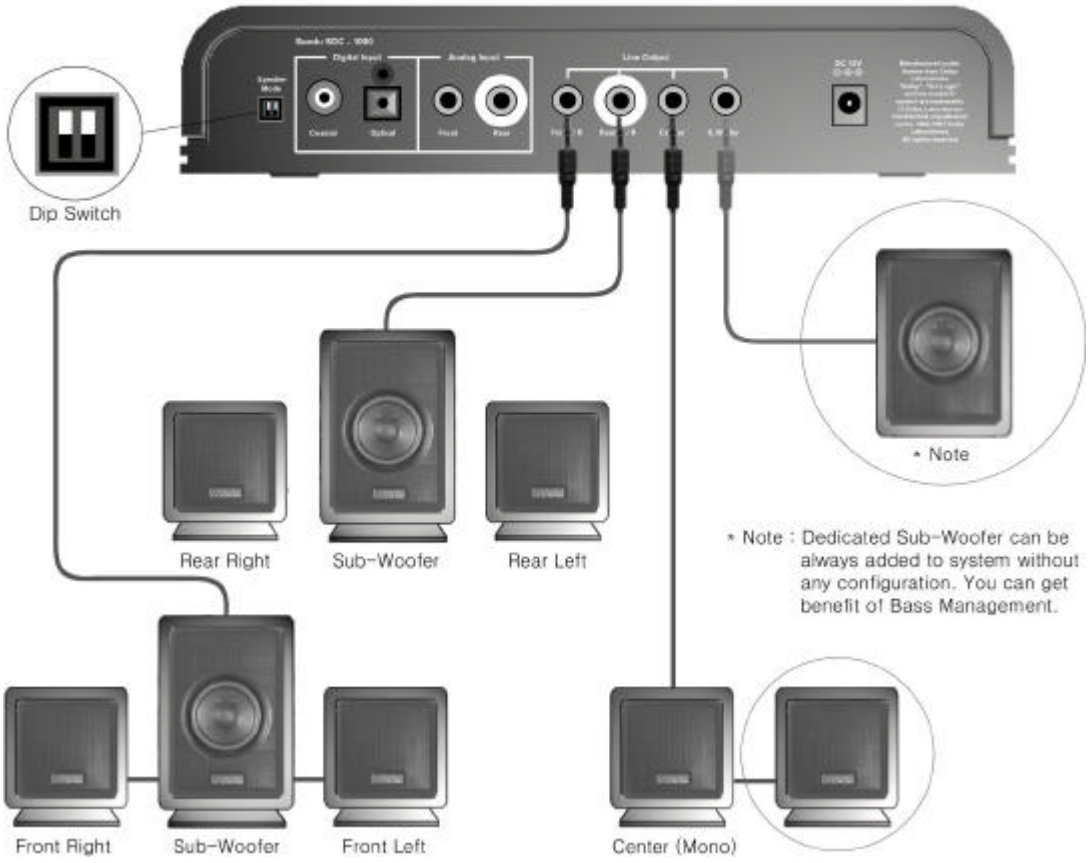


Speaker Setting - VII

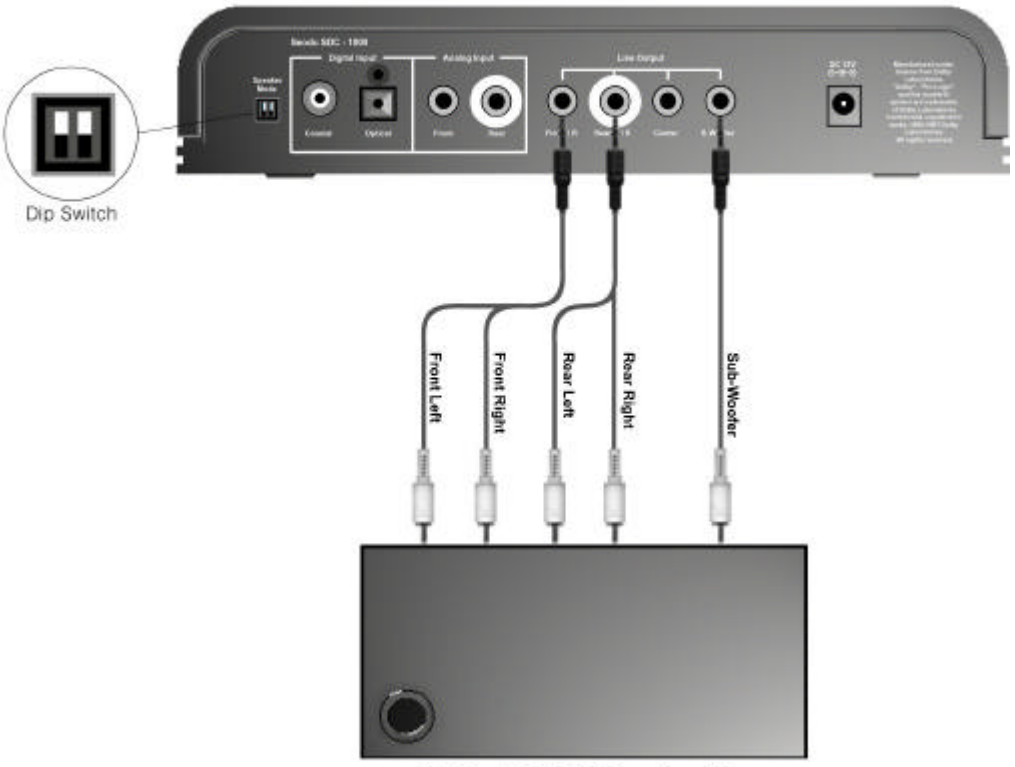
with 1 set of stereo multimedia speaker (with woofer), 1 set of stereo multimedia speaker & 1 set of mono (stereo) multimedia speaker



Speaker Setting - VIII
with 2 sets of stereo multimedia speaker (with woofer) & 1 set of mono (stereo) multimedia speaker

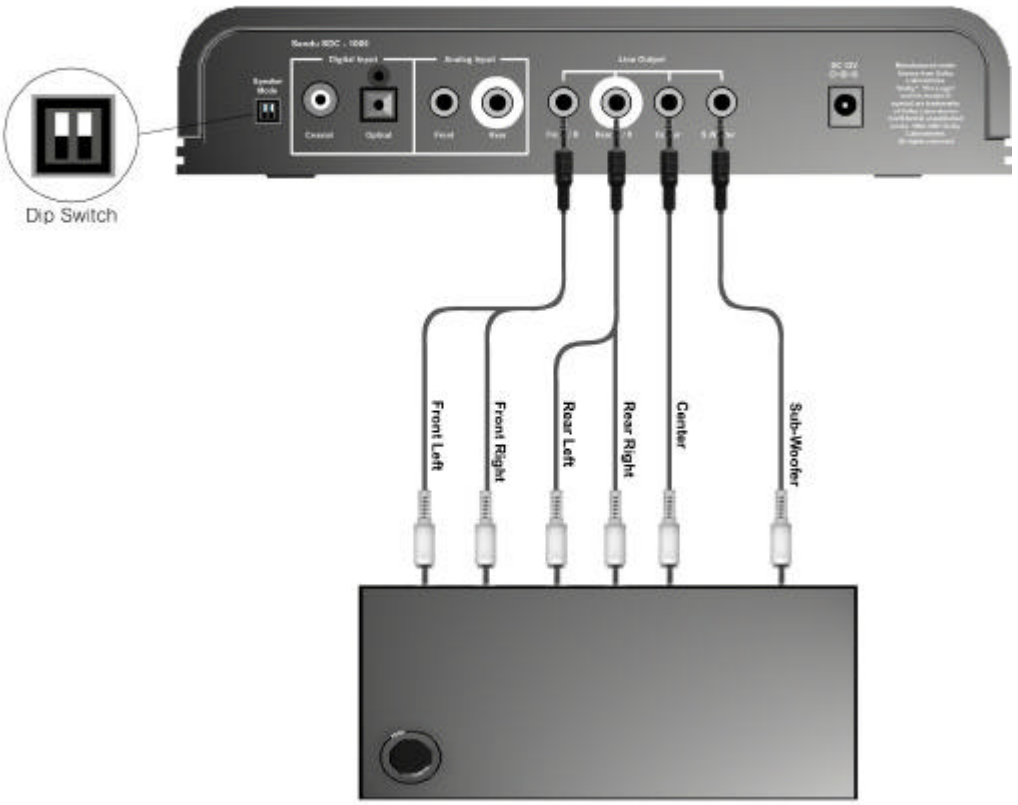


Speaker Setting - IX
with 4.1 channel power amplifier



Line Input of 4.1 CH Power Amplifier

Speaker Setting - X
with 5.1 channel power amplifier



Line Input of 5.1 CH Power Amplifier

(4) Operation

- Installation and Speaker Setting
  As explained in previous chapter, complete the installation and speaker setup. Perform speaker test, and verify correct positioning and volume level

- Executing PC S/W or Playing Audio Source Attached
  Execute S/W DVD Player, WinAMP or Media Player if you have connected the system to PC sound card. If you also have attached other audio source like portable CDP, start playing it.

- Volume Adjustment and Input Selection
  Adjust master or individual volumes again if needed. And also select proper input port connected to audio source that you want to listen and enjoy.

- Select Proper Surround Mode
  Finally choose the most comfortable surround mode to your taste.

  NOTE : As mentioned before, surround effects like Music, Theater and Stadium cannot be used when playing Dolby Digital stream.
  Also Center Delay and Surround Delay functions are applicable in Dolby Digital and Pro Logic mode, while Dynamic Range Compression function is applicable in Dolby Digital mode only, therefore you will not hear any change when playing plain PCM and analog input with surround mode selected.

(5) Product Specification

Features

- Dolby Digital Audio Support
  - Dolby Digital and Dolby Pro Logic support
  - Ideal for watching DVD movie and playing 3D games in PC
- Various Surround Sound Support
  - Bypass / Dolby Surround / Stereo / Music / Theater / Stadium
- Various Input Support
  - Digital Optical / Digital Coaxial / Line In (2 / 4 CH)
  - 4 channel Line In to support modern PC Sound Cards
  - 2 digital inputs for flexible use
- Sound Function Control Support
  - Center, Surround Delay and Dynamic Range Compression
- High Quality and Low Noise Design
  - low THD+N, high SNR comparable to consumer audio
- Flexible Speaker Mode Support
  - 2 / 3 / 4 / 5 / 6 speaker mode support
  - Automatic Bass Management support

Front Panel

- Power On / Off Switch
  - Standby-mode power
- Easy-to-Read LED Indicators
  - Program format display, various settings display
- Individual Volume Control
  - Left / Right / Center / Rear Left / Rear Right / Sub Woofer
- Surround Mode Selection Control
  - Bypass / Dolby Surround / Stereo / Music / Theater / Stadium
- Input Selection
  - Digital Optical / Digital Coaxial / Line In
- Function Selection
  - Center Delay / Surround Delay / Dynamic Range Compression
- Test Tone Signal
  - L / C / R / RR / RL / SW
- Mute Button

Rear Panel

- 6 Channel Variable Line Output
  - Front Left / Right (Stereo)
  - Rear Left / Rear Right (Stereo)
  - Center (Mono)
  - Sub Woofer (Mono)
- 2 Digital Input
  - Optical S / PDIF digital input
  - Coaxial-RCA S / PDIF digital input
- 1 Analog Input
  - 4 Channel Line In
- Speaker Mode Setting DIP Switch
- AC-to-DC Adapter (12V) Input