AVM 20
OPERATING MANUAL

A N T H E M ™

DVD   Digital   MAIN
DD+THX SurEX-15.0 dB

SONIC FRONTIERS
INTERNATIONAL

BREAKING THE SOUND BARRIER™

SAFETY PRECAUTIONS
READ THIS SECTION CAREFULLY BEFORE PROCEEDING!

⚡	**WARNING** RISK OF ELECTRIC SHOCK DO NOT OPEN	!
WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		

⚡ The lightning flash with arrowpoint within an equilateral triangle warns of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

! The exclamation point within an equilateral triangle warns users of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE THE FUSE ONLY WITH THE SAME AMPERAGE AND VOLTAGE TYPE. REFER REPLACEMENT TO QUALIFIED SERVICE PERSONNEL.

WARNING: UNIT MAY BECOME HOT. ALWAYS PROVIDE ADEQUATE VENTILATION TO ALLOW FOR COOLING. DO NOT PLACE NEAR A HEAT SOURCE, OR IN SPACES THAT CAN RESTRICT VENTILATION.

IMPORTANT SAFETY INSTRUCTIONS

1. **Read Instructions** – All the safety and operating instructions should be read before the product is operated.

2. **Retain Instructions** – The safety and operating instructions should be retained for future reference.

3. **Heed Warnings** – All warnings on the product and in the operating instructions should be adhered to.

4. **Follow Instructions** – All operating and use instructions should be followed.

5. **Cleaning** – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp, soft cloth for cleaning.

6. **Water and Moisture** – Do not use this product near water – for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.

7. **Accessories** – Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

8. **Ventilation** – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

9. **Power Sources** – This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

10. **Grounding and Polarization** – This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

11. **Power-cord Protection** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

12. **Outdoor Antenna Grounding** – If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to the proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna–discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Antenna Lead-In Wire

Ground Clamp

Antenna-Discharge Unit
(NEC Section 810-20)

Grounding Conductors
(NEC Section 810-21)

Electrical Service
Equiptment

Ground Clamps

Power Service Grounding
Electronic System
(NEC ART 250. Part H)

NEC-National Electrical Code

S2898A
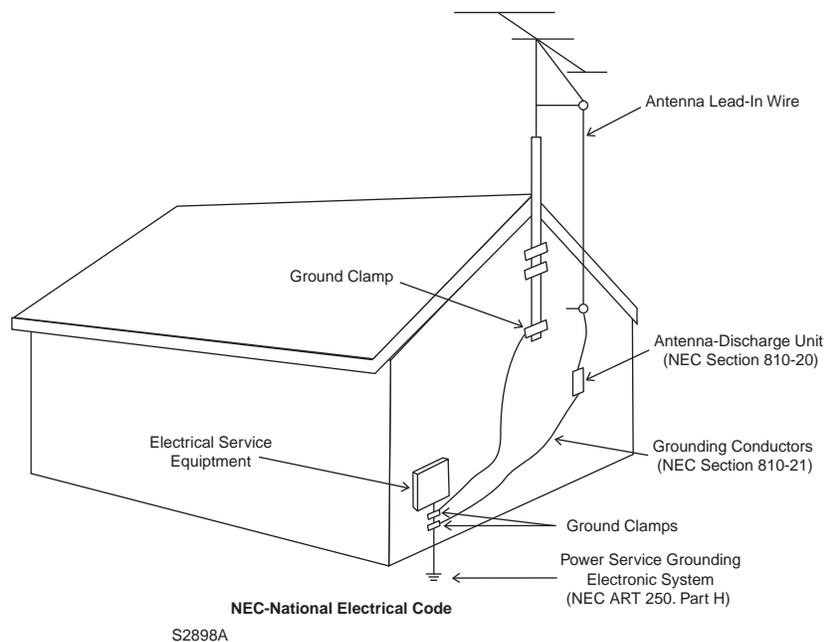
13. **Lightning** – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable systems. This will prevent damage to the product due to lightning and power-line surges.

14. **Power Lines** – An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

15. **Overloading** – Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

16. **Object and Liquid Entry** – Never push objects of any kind through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on this product.

17. **Servicing** – Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

18. **Damage Requiring Service** – Unplug this product from the wall outlet and refer servicing to qualified personnel under the following conditions:

   • When power-supply cord or plug is damaged.

   • If liquid has been spilled, or objects have fallen into the product.

   • If the product has been exposed to rain or water.

   • If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will require extensive work by a qualified technician to restore the product to its normal operation.

   • If the product has been dropped or damaged in any way.

   • If the product exhibits a distinct change in performance – this indicates a need for service.

19. **Replacement Parts** – When replacement parts are required, be sure the technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

20. **Safety Check** – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

21. **Heat** – The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

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1. INTRODUCTION

Thank you for purchasing the Anthem AVM 20 Preamplifier • Processor • Tuner.

Anthem Electronics has been manufacturing high-quality, high-end audio equipment for over a decade. In that time, Anthem has built an enviable reputation for products that can recreate the passion a music lover experiences when attending a live musical performance, or the thrilling sound a movie buff experiences in the very best movie theaters. Anthem equipment allows audiophiles to almost "be there" each and every time they sit and enjoy music or home theater in the comfort of their home. Anthem provides all this with the highest level of craftsmanship, sophisticated circuit designs, superior quality parts and materials, modern intuitive ergonomics, and stylish industrial design.

Although Anthem products sound great "right out of the carton", they will sound even better after they are thermally stabilized. We therefore recommend that you operate this product for a period of time before doing any critical listening.

The AVM 20 is a state-of-the-art four path A/V Preamplifier / Surround Sound Processor, with built-in FM•AM Tuner. It is designed to provide high-end sound and video for both music, home theater, and multi-room applications.

1   RECEIVING AND UNPACKING THE AVM 20

The AVM 20 is shipped in a reinforced shipping box. Please keep this box for any future shipment. Check that you have received everything in the Packing List below and report any discrepancies to your dealer as soon as possible. **Keep the invoice that you received from your authorized Anthem dealer at time of purchase – without it, service cannot be given under warranty.**

1.1   PACKING LIST

- AVM 20
- Powered IR Terminal Block (on rear panel)
- Remote Control
- 2 'AA' Batteries
- Power Cord
- FM Antenna
- 75-ohm to 300-ohm FM Antenna Adapter
- AM Loop Antenna
- Operating Manual

1.2   IMPORTANT SAFETY INSTRUCTIONS

- The Front Panel power switches are secondary only; they do not disconnect the AVM 20 from the AC power line. Line voltage is switched off through the rear panel power switch.

- Failing to comply with any safety instruction, precaution, or warning in this Operating Manual is in direct violation of the standards of design, manufacture, and intended use of the product.

- Anthem, Sonic Frontiers International, our agents, and any related party assume no liability whatsoever for the user's failure to comply with any or all of these requirements.

1.2.1   BEFORE OPERATING YOUR AVM 20

- Do not connect power to the AVM 20 if there are signs of damage to any part of its exterior.

- Install the AVM 20 in a stable location. Do not mount to a wall or from a ceiling.

- Allow six or more inches of unobstructed air space above the ventilation slots in the top cover of the AVM 20. Do not block any ventilation openings. Do not obstruct bottom vents by removing the rubber feet or operating the AVM 20 directly on a carpet, sofa, or similar surface.

1.2.2   SUPPLY POWER REQUIREMENTS

The AVM 20 operates from a single phase AC power source that supplies between 105V and 130V at a frequency of 60 Hz. It cannot be changed from 120V to 240V operation.

DO NOT USE A POWER LINE CONDITIONER:

- **Some Power Line Conditioners are incompatible with the AVM 20 and may cause the AVM 20's AC line fuses to blow.**

- **One is not required because the AVM 20's power supply has power line filtering and voltage regulation built in.**

1.2.3   IN-USE NOTICES

- Use only the power supply cord with double insulation as supplied.

- Disconnect the AVM 20's power cord before connecting or disconnecting any components.

- Fuses are not a user serviceable item (see specification section).

- Do not remove the top cover.

- Do not alter or modify the AVM 20 in any way.

1.3   PACKING MATERIALS

Retain the shipping box and all packing material. They are custom designed to prevent shipping damage. Do not ship or transport the AVM 20 in anything other than the original box and packing material.

2. QUICK **START**

The AVM 20 is a very sophisticated component, providing a multitude of features and connection options, while providing easy intuitive setup and operation. With your AVM 20 in front of you, browse through the illustrations in this section to see several quick system hookup options. It's as simple as following the lines in the connection diagrams to and from each component.

All of these quick system hookup examples work with the Factory Default settings; none require the Setup Menu. Just 'plug & play'! However, references to the Setup Menu section are included to make you aware of the tremendous versatility of the AVM 20.

For the best sound possible you will still have to calibrate your system in the Setup as outlined in section 7. Please do not overlook this important system calibration procedure.

2.1 QUICK START GUIDE – **Before you start, make sure all components are unplugged.**

To connect a CD player, DVD player, TV, VCR, amplifier(s), and powered subwoofer to the AVM 20:

Note: For this Quick start setup section, you will only need to connect either the Composite or S-Video connections referred to in the following diagrams. Use the S-Video connections wherever possible for the better video quality.

- **CD Player to AVM 20** – see diagram in section 2.2.1
  Connect the L/R audio output of the CD player to Analog Audio-In/CD on the AVM 20.

- **DVD Player to AVM 20** – see diagram in section 2.2.2
  Video: Connect the player's composite video out to Composite Video-In/DVD on the AVM 20.
  Audio: Connect the player's digital audio output to Digital Audio-In/DVD on the AVM 20.

- **AVM 20 to TV** – see diagrams in sections 2.2.2 and 2.2.3
  Video: Connect Composite Video-Out/MAIN on the AVM 20 to the TV's composite video input.
  Audio: Connect the L/R audio output of the TV to Analog Audio-In/TV on the AVM 20.

- **VCR to AVM 20** – see diagram in section 2.2.3
  Video: Connect the VCR's composite video output to Composite Video-In/VCR on the AVM 20.
    To Record: Connect Composite Video-Out/VCR to the VCR's composite video input.
  Audio: Connect the L/R audio output of the VCR to Analog Audio-In/VCR on the AVM 20.
    To Record: Connect Analog Audio-Out/VCR to the L/R audio input of the VCR.

- **AVM 20 to Amplifier(s)** – see diagrams in sections 2.2.4 and 2.2.5
  From the AVM 20, connect Front-L, Front-R, Ctr1, Sur-L, Sur-R, Rear-L, and Rear-R Analog Audio-Out to the Front-L, Front-R, Center, Sur-L, Sur-R, Rear-L, and Rear-R inputs of the power amplifier(s). Follow the amplifier's operating manual for connecting the speakers.

- **AVM 20 to Powered Subwoofer** – see diagrams in sections 2.2.4 and 2.2.5
  Connect Analog Audio-Out/Sub1 to the subwoofer's line/low level input.

Reconnect the power to all components and turn them on. To turn on the AVM 20, move the switch on the rear panel to the 'on' position and then press the **POWER** – **MAIN** button on the front panel.

To Watch a DVD:

- Press **DVD** Source on the front panel of the AVM 20.
- Select the TV input that corresponds to the one that the AVM 20's Composite Video-Out/MAIN is plugged into.
- Place a DVD into the DVD player and press play. You should see the picture on your TV and hear sound from your speakers. Adjust volume using the Master Control Knob on the AVM 20.

To Watch a Video Tape:

- Press **VCR** Source on the front panel of the AVM 20.
- With your TV's remote control, select the input that the AVM 20's Composite Video-Out/MAIN is plugged into.
- Insert a tape into the VCR and press play. You should see the picture on your TV and hear sound from your speakers. Use the AVM 20 Master Control Knob on the front panel to adjust volume.

To Listen to a CD:

- Press **CD** Source on the front panel of the AVM 20.
- Place a CD into the CD player and press play. You should hear music coming from your speakers. Use the AVM 20 Master Control Knob on the front panel to adjust volume.

Note about Digital and Analog Inputs:

- You can change any input to Digital or Analog. Digital inputs use the AVM 20's high-end digital to analog converters and can be changed from RCA to Toslink or XLR connection. Analog inputs can be set to Digital Signal Processing for bass management, bass/treble control, time alignment, and surround modes, or Direct to bypass all digital stages. Auto-Dig uses the digital connection if a digital signal is sensed, and automatically switches to analog connection if there is no digital signal. For more information see sections 4.2.1 and 7.4.5.

Note about Your Speakers:

- The AVM 20 allows you to enter information about how many speakers you have in your system, as well as their relative size, type, and distance from your listening position. This speaker setup information is important in directing audio signals optimally, ensuring you get the best quality sound from your system – see sections 7.4.2, 7.4.3, and 7.4.4.

2.2   CONNECTOR DIAGRAMS AND DESCRIPTIONS

The following pages of illustrations contain a variety of standard cable/connectors that are used to connect components to your AVM 20. The various types, and what they are used for, are shown here:

RCA Black or White	RCA Red	RCA Yellow	1/4" Stereo	3.5mm Mini (Mono)	5-Pin Mini DIN	Toslink	XLR Female (connects to output)	XLR Male (connects to input)
Analog Left Channel	Analog Right Channel	Digital S/PDIF or Composite Video						
RCA Green: Component Y	RCA Blue: Component Pb/Cb	RCA Red: Component Pr/Cr	Headphone	Relay Trigger IR Emitter	S-Video	Digital Audio S/PDIF	Analog Balanced or Digital AES/EBU	Analog Balanced or Digital AES/EBU

2.2.1 CD Player to AVM 20

2. QUICK **START** continued ...

2.2.2 DVD Player and TV to AVM 20

Rear Panel of TV

Note:
For info on Component Video use, see sections 4.3, 7.4.5, and 7.4.10

DVD Player
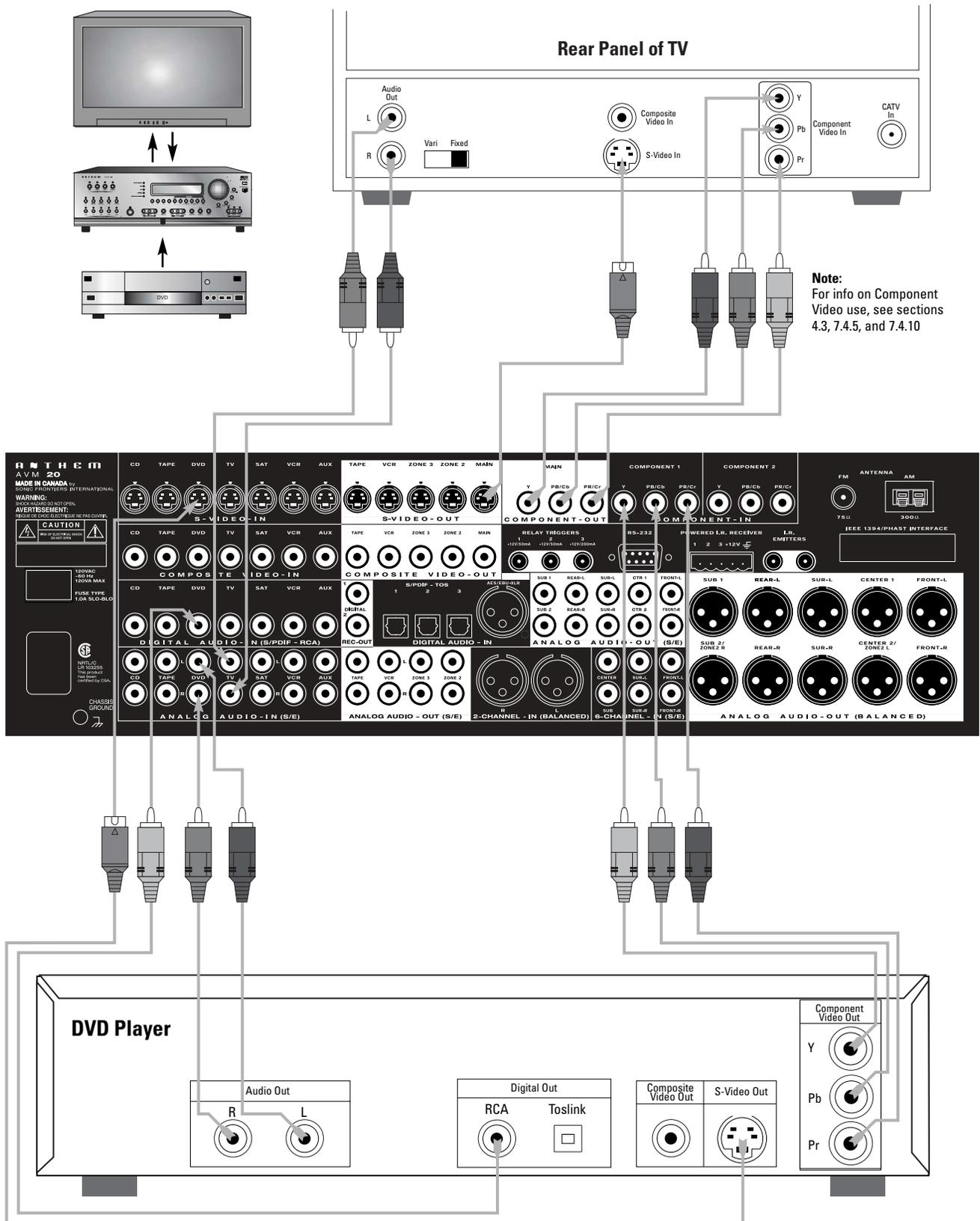
2.2.3   VCR and TV to AVM 20

Rear Panel of TV

VCR
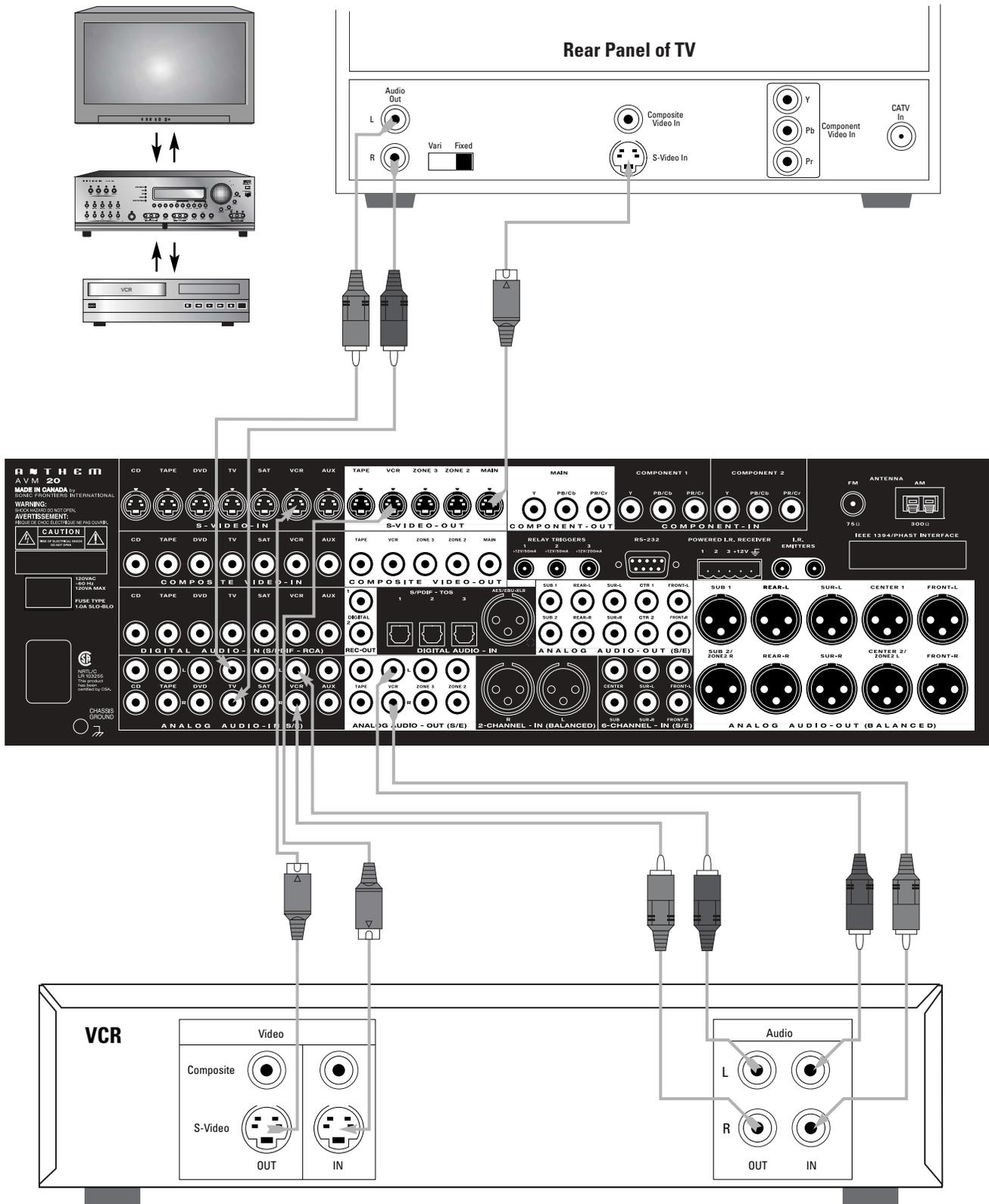
2. QUICK **START** continued ...

2.2.4 AVM 20 to Amplifier and Powered Subwoofer (RCA)
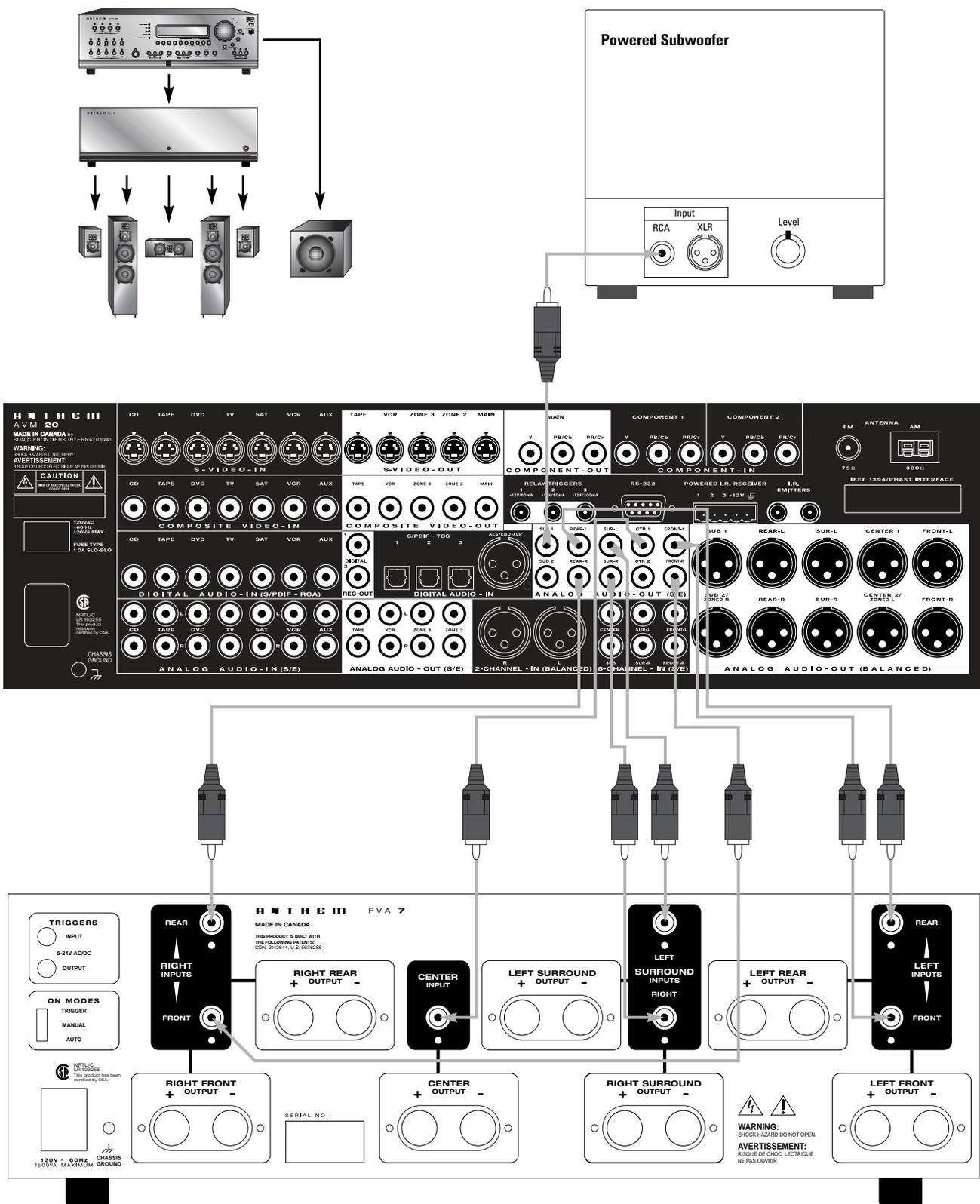
2.2.5 AVM 20 to Amplifiers and Powered Subwoofer (XLR)
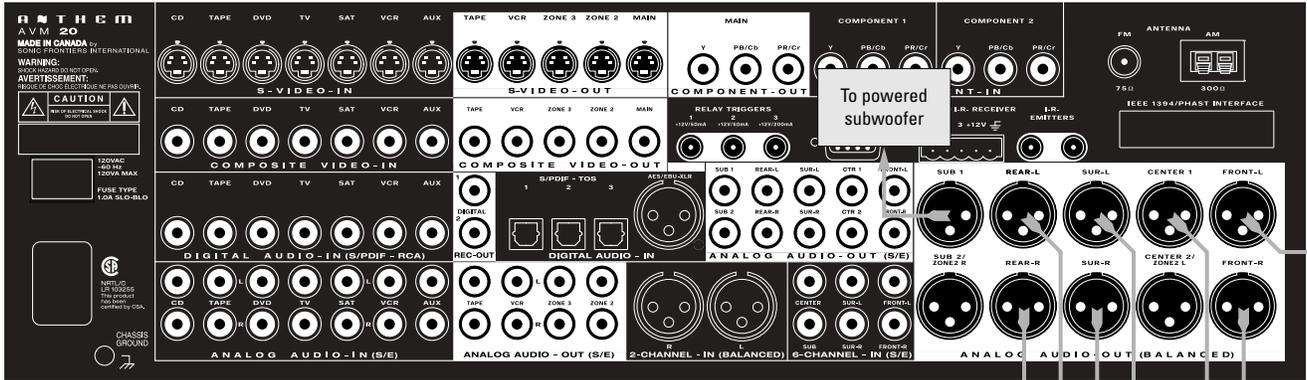
Trigger Setup Suggestion:
If it is not necessary to have both amplifiers turned on when stereo sources are playing, set triggers to turn on only the 2-channel amplifier when a stereo source is selected (see section 7.4.9).

To powered subwoofer
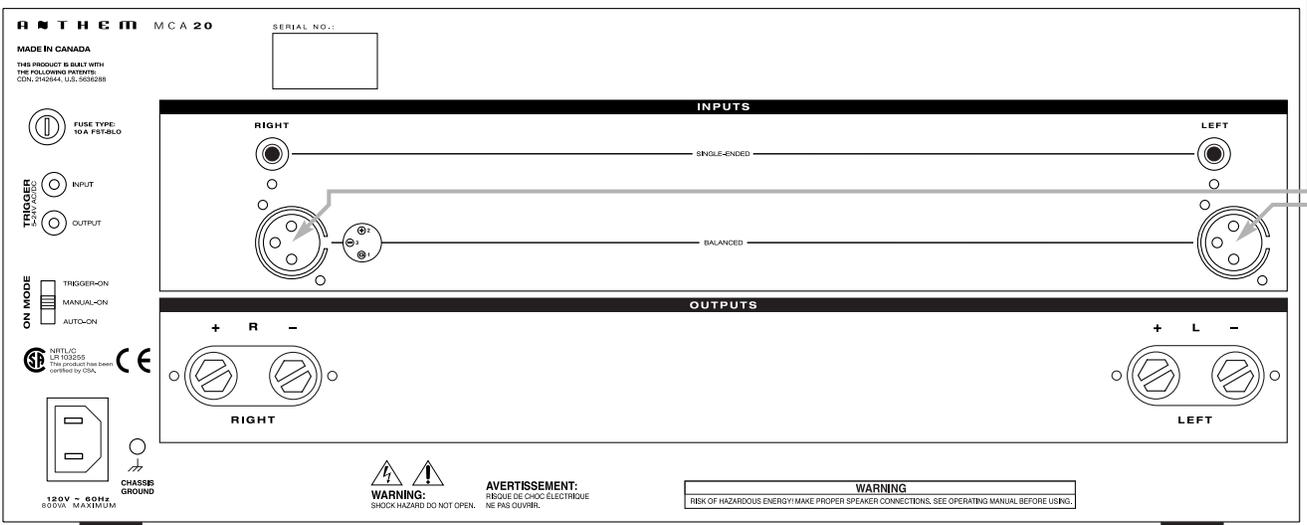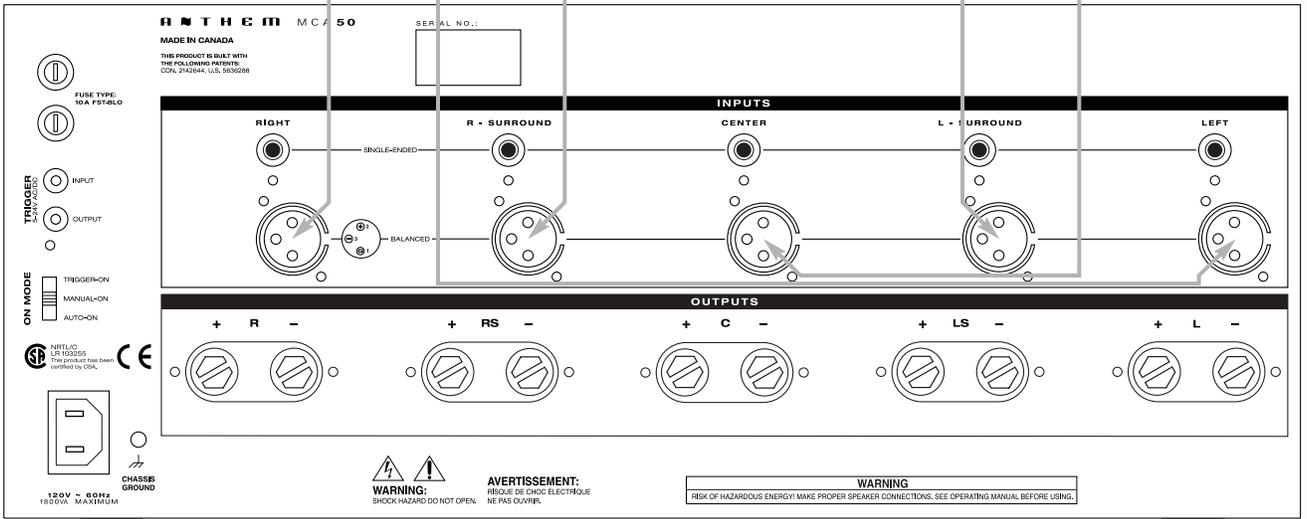
2.3   SPEAKER PLACEMENT

These illustrations show the typical speaker placement for a 7.1-channel surround system, the '.1' channel being the LFE (Low Frequency Effect). The Front and Center speakers are directed towards the listener from the front, while the Surround speakers are positioned to the sides, and the Rear speakers are positioned behind the listener. Ideally, the Surround and Rear speakers should be positioned 2-3 feet above ear level.
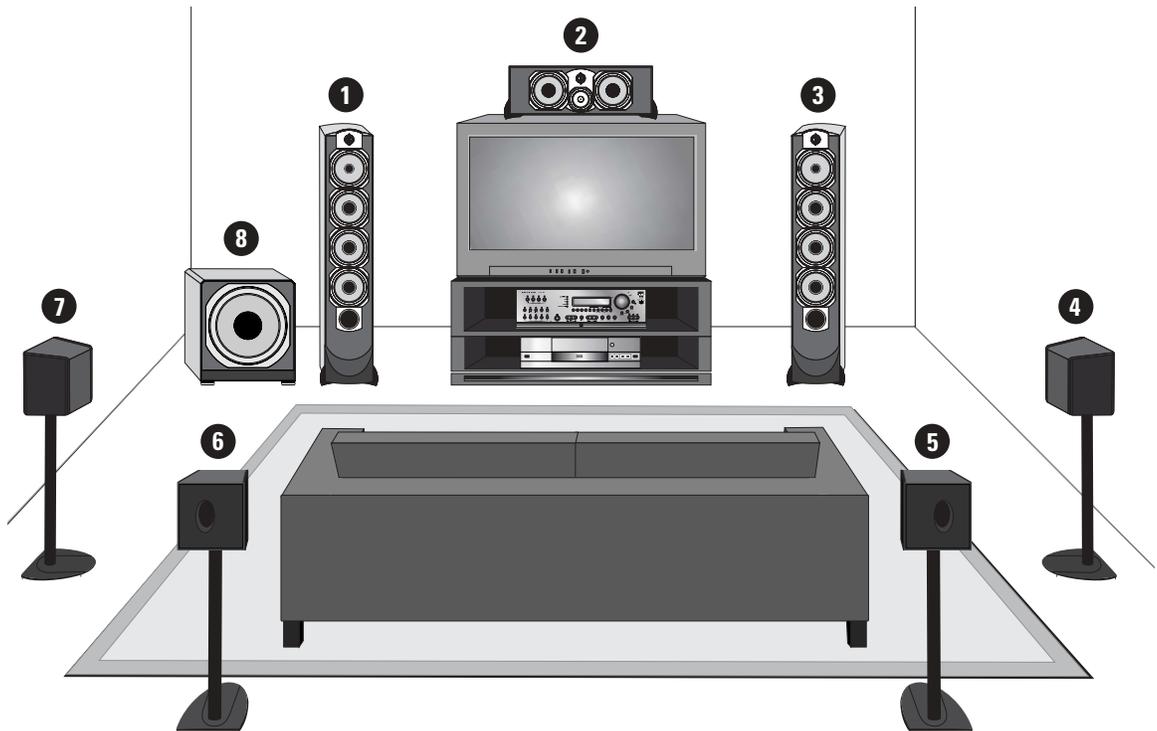
1.	Front-Left	3.	Front-Right	5.	Rear-Right*	7.	Surround-Left*
2.	Center	4.	Surround-Right*	6.	Rear-Left*	8.	Subwoofer

*Dipole shown with 'null' facing listening area. Direct radiating – see diagram below.

For accurate soundstage reproduction, speaker size and distance to the listener should be entered in the Setup Menu (see sections 7.4.2, 7.4.3, and 7.4.4).

Surround Speaker Placement – Dipole

slightly behind listening position
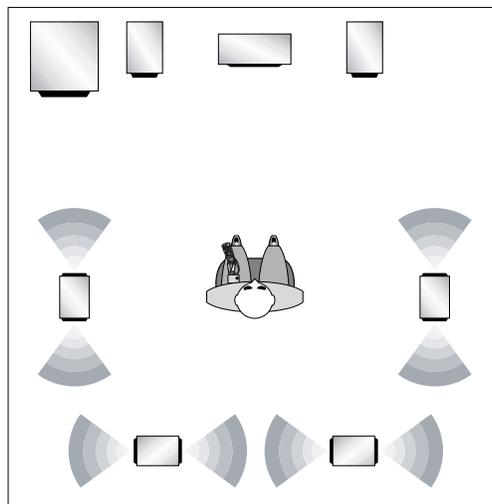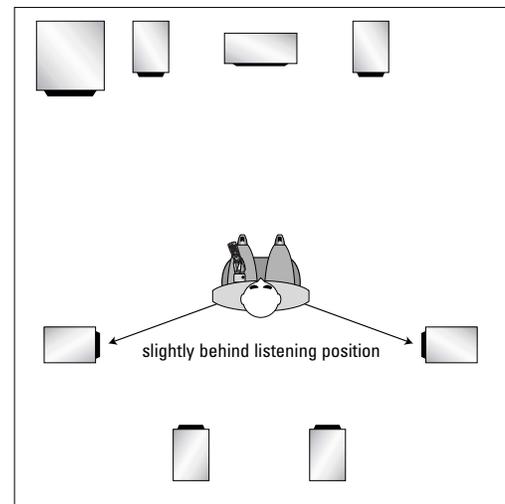
Surround Speaker Placement – Direct Radiating

3. PANELS / DISPLAY / REMOTE **LAYOUT**

3.1   FRONT PANEL LAYOUT

The front panel of the AVM 20 has the Master Control Knob, selection/navigation buttons, a display, status indicator LEDs, and the Headphone jack .

1 – Path selection

2 – Mode / Surround Decoder indicators

3 – Display

4 – FM•AM Preset selection

5 – FM•AM Tuning / Setup Navigation

6 – Master Control Knob

  • Volume

  • Tune for FM•AM

  • Setting Adjustment for Mode; DD Dynamics; THX Options; Surround Mode Level / Bass / Treble / Balance; Path Bass / Treble / Balance; Display Brightness

  • Setup Adjustment for Letters, Numbers, and Times

7 – Surround Mode / Headphone settings for Level / Bass / Treble / Balance

8 – Subwoofer / LFE Level settings

9 – Power On / Stand-By (MAIN / ZONE2 / ZONE3)

10 – Mute

11 – Status review / Setup (press and hold for 3 seconds)

12 – Balance setting

13 – Bass / Treble settings

14 – LED / Display Brightness setting (see section 7.4.10)

15 – Front Panel Remote Control IR Sensor

16 – Surround Mode / Dynamics / THX Options settings

17 – Headphone Jack

18 – Source selection

See section 5 for complete information on Front Panel operation.

3.2   FRONT PANEL DISPLAY

MAIN Display Example:

```
 DVD      Dolby D   MAIN
 THX SurEx      -17.5 dB
```
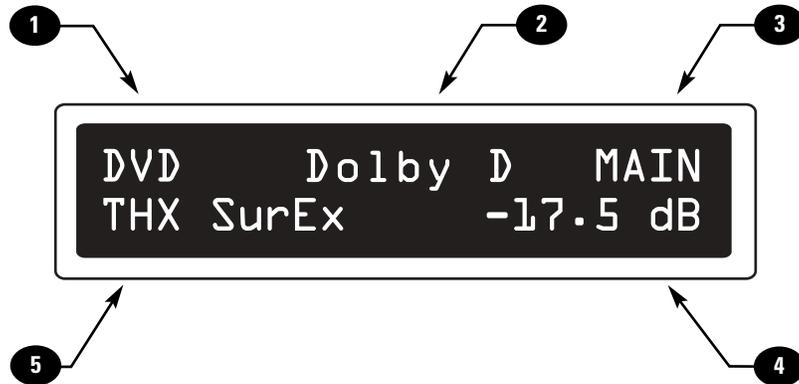
1 –   Source selection (see section 5.4).

2 –   Audio Input Format (see section 7.4.5) or Sleep Indicator if engaged (see section 6.5).

3 –   Path that the information on the display refers to (see section 5.2).

4 –   Volume setting. When MAIN, ZONE2, or ZONE3 are muted, "Muted" flashes instead of the current volume setting (see section 5.5).

5 –   Surround Mode (if the Source is FM•AM, then the tuned station appears).

FM•AM Display Example:

```
 FM1-2 St Sk>      MAIN
 93.5 MHz      -17.5 dB
```
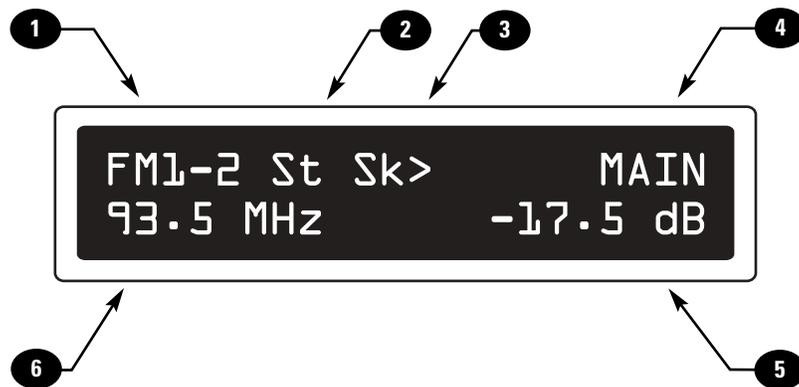
1 –   Source+Band. The tuner has three FM bands (FM1, FM2, and FM3) and one AM band. The number after the selected band is the preset station (see section 5.4.2).

2 –   FM mode. Displays "St" when in stereo, "HB" when Hi-Blend is selected, or "Mn" when in mono or mono is selected (see section 5.4.2).

3 –   Seek when tuning FM•AM stations (see section 5.4.2).

4 –   Path (see section 5.2).

5 –   Volume setting. When MAIN, ZONE2, or ZONE3 are muted, "Muted" flashes instead of the current volume setting (see section 5.5).

6 –   Currently tuned FM•AM frequency to the nearest 0.1 MHz for FM and to nearest 10 kHz for AM (see section 5.4.2).

If changes take place simultaneously in different Paths, the hierarchy of the display info is:

1) Volume changes, 2) Front Panel activity, 3) MAIN, 4) ZONE2, 5) ZONE3, 6) RECORD, 7) HEADPHONE.

3.3   REAR PANEL LAYOUT

The rear panel of the AVM 20 contains all connections, such as power connection, audio and video inputs and outputs, antenna connections, and the RS-232 port which allows software upgrades and external control of the AVM 20.

1	–	7 Composite Video RCA Inputs	**13**	–	RS-232 Interface Port (Bi-Directional)
2	–	7 S-Video Inputs	**14**	–	MAIN Analog Audio RCA Output (10 Jacks)
3	–	5 Composite Video RCA Outputs	**15**	–	Analog Audio 6-Channel RCA Input (6 Jacks)
4	–	5 S-Video Outputs	**16**	–	Digital Audio AES / EBU Input (Assignable)
5	–	Component Video Outputs (3 Jacks/ea)	**17**	–	Analog Audio 2-Channel XLR Input (2 Jacks)
6	–	3 Relay Trigger 3.5mm Outputs (Assignable)	**18**	–	ZONE2, ZONE3, and REC Analog Audio RCA Outputs
7	–	2 Assignable Component Video Inputs (3 Jacks/ea)	**19**	–	3 Digital Audio Toslink Inputs (Assignable)
8	–	FM and AM Antenna Inputs	**20**	–	2 Digital Audio RCA REC Outputs
9	–	IEEE 1394/PHAST Interface provision*	**21**	–	7 Analog Audio RCA Inputs (L/R Jacks)
10	–	2 I.R. Emitters	**22**	–	7 Digital Audio RCA Inputs
11	–	MAIN Analog Audio Balanced XLR Output (10 Jacks)	**23**	–	Ground Terminal
12	–	3 12V powered Infra Red (IR) 3.5mm Inputs	**24**	–	Power Cord Connection

* Interface card requires installation by a qualified dealer.

3.4 REMOTE CONTROL LAYOUT

1 – IR Transmitter (front face)

2 – Transmission Indicator LED (red)

3 – Power ON when in MAIN, ZONE2, or ZONE3 personality
Power ON/OFF for other components (see #4)
Note: This does not turn the AVM 20 off (see #31)

4 – Path / Component 'Personality' selection

5 – FM•AM Preset selection (6)

6 – Selects Tone Bypass

7 – Mode setting

8 – Dynamics setting

9 – FM•AM Preset Station Up

10 – FM•AM Preset Station Down

11 – THX Options settings

12 – Center Channel setting for Level / Bass / Treble

13 – Back (for Setup)

14 – Subwoofer / LFE Level settings

15 – Setup (Press & Hold for 3 seconds)

16 – Source Seek

17 – Balance setting

18 – RECORD Path selection (Must be in MAIN – see #4)

19 – Source selection (10 inputs)

20 – Copy MAIN when ZONE2, ZONE3, or RECORD is selected

21 – Bass setting

22 – Treble setting

23 – Surrounds / Rears setting for Level / Bass / Treble / Balance

24 – ⬍ • Tune for FM•AM
  • Setting Adjustment for Mode; DD Dynamics; THX Options; Surround Mode Level / Bass / Treble; Path Bass / Treble; Timers; Display Brightness
  • Navigation for Setup

25 – ⬌ • Seek for FM•AM
  • Setting Adjustment for Surround Mode Balance; Path Balance
  • Navigation for Setup (North / South / East / West)

26 – Status / FM•AM Direct Entry / Setup selection

27 – Fronts / Headphones setting for Level / Bass / Treble / Balance

28 – Volume Down

29 – Sleep Timer selection / Timers setting

30 – Volume Up

31 – Power OFF when in MAIN, ZONE2, or ZONE3 personality

32 – Mute

33 – Front Panel LED / Display Brightness setting / Audio Group Delay

34 – On-Screen Display

35 – Learn (for customization of remote)
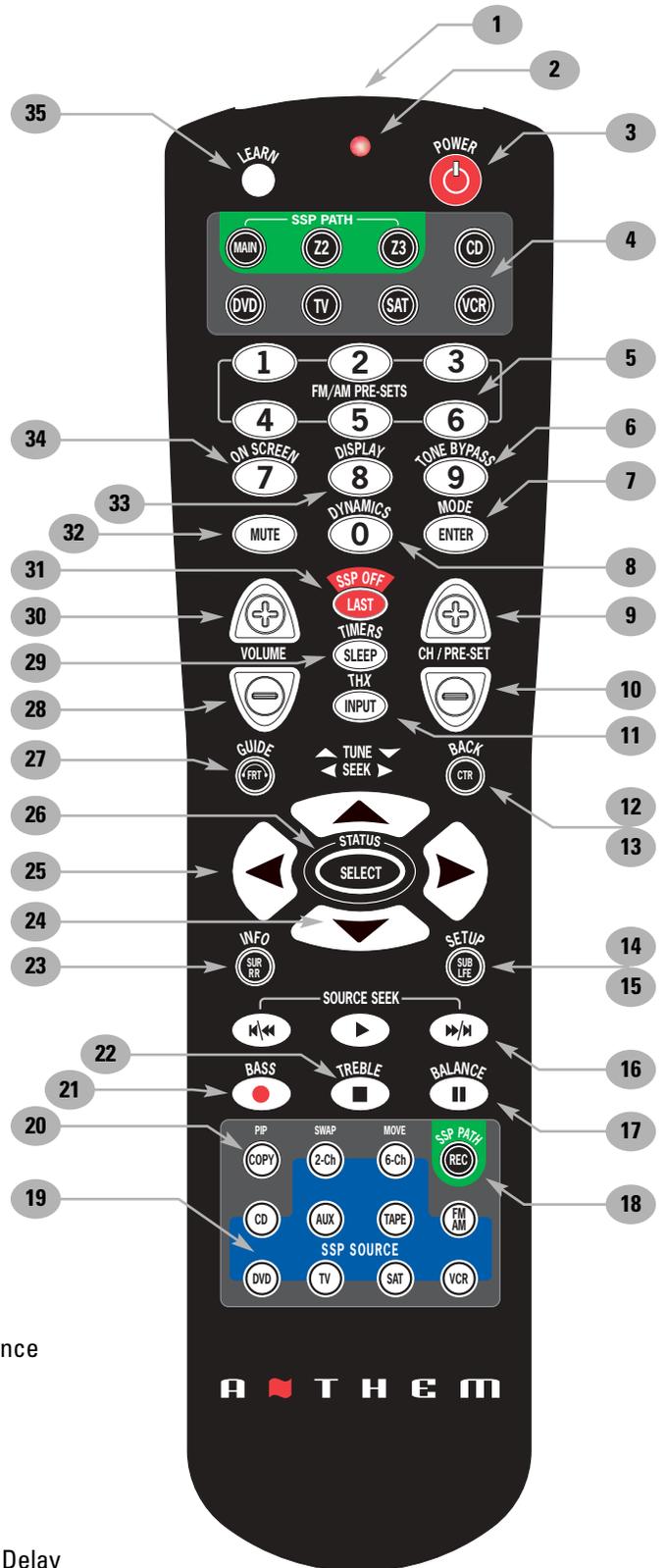
See section 6 for complete information on operation of the Remote Control.

4. CONNECTIONS

4.1   CONNECTING POWER TO THE AVM 20

Connect the power cord to the back of the AVM 20 and then to a 105 to 130 Volt, 60 Hz AC outlet.

4.2   AUDIO CONNECTIONS

There are two methods of transmitting audio signals: Analog and Digital. Analog is an electrical waveform representation of sound and requires one cable for each channel. Digital represents sound using a sequence of numbers and requires only one cable for all channels.

Every audio input in the AVM 20 can be changed from the factory setting to either Digital or Analog, except 2-Ch BAL and 6-Ch S/E, which accept analog signals only (see section 7.4.5).

4.2.1   DIGITAL AUDIO INPUTS AND OUTPUTS

Digital Audio-In connections are made through a coaxial (RCA), optical (TOS), or balanced (XLR) cable. From the factory, DVD and SAT are set to Digital-RCA, whereas CD, TAPE, TV, VCR, and AUX are set to Analog-DSP.
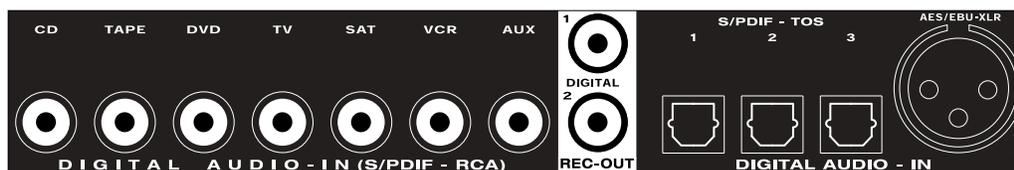
The highest transmission quality is achieved with the AES/EBU-XLR connection. The AVM 20 provides one such connection which may be assigned to any Source, except 2-Ch BAL and 6-Ch S/E. The S/PDIF-RCA connection offers the next best digital transmission – use for source components with digital RCA outputs. For source components with Toslink outputs only, use S/PDIF-TOS connections. These may also be assigned to any Source, except 2-Ch BAL and 6-Ch S/E (see section 7.4.5).

> **Note:** An external RF demodulator is required if using a Laser Disc player with Dolby Digital/AC-3.

Digital Rec-Out can provide a signal to the digital audio input of a Mini Disc recorder, CD-R, etc., from any Source set to 'Digital' or 'Anlg-DSP' (see sections 7.4.5 and 7.4.7).

4.2.2   ANALOG AUDIO INPUTS

Left/Right Analog audio connections are made through a pair of interconnect cables – typically white or black for the Left channel and red for the Right channel. The audio output connectors on tape recorders, VCRs, and CD players are normally color coded in this same manner.
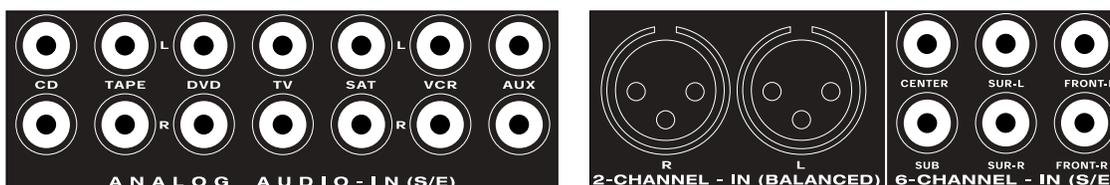
> **Note:** Connect both the digital <u>and</u> analog outputs from source components that have both types of connection (e.g. DVD player) – ZONE2, ZONE3, and RECORD <u>require</u> analog audio connection unless set to 'copy' MAIN (see section 5.2.1).

Caution for DTS: With DTS-CDs or DTS Laser Discs, do not use analog connection if your player does not have the DTS logo on its faceplate, otherwise a loud noise will be produced at the analog outputs of the player. Players that have the DTS logo can pass a DTS-encoded signal through their digital outputs, but may still require a setup change to enable it (see player's operating manual).

4.2.3   2-Ch BALANCED AND 6-Ch SINGLE-ENDED (S/E) ANALOG AUDIO INPUTS

The 6-Ch S/E input is intended primarily for DVD-Audio and multichannel SACD players. If unused for this purpose, the Front-Left and Front-Right connections can be used as a 2-channel input.

Note: When 6-Ch S/E is selected as the Source, the video signal from the **DVD** input will be routed to the video outputs – connect your player's video output to the DVD input (sections 4.3 and 7.4.5).

The 2-Ch BAL and 6-Ch S/E inputs can be set to either bypass all digital stages in the AVM 20 or to include digital stages, so that bass management, time alignment, surround modes, bass/treble control, audio group delay, and THX post-processing can be enabled (see sections 5.7, 5.8, 7.4.2, and 7.4.5).

4.2.4   ANALOG AUDIO OUTPUTS

Balanced XLR connection offers the highest transmission quality, particularly over long cable lengths, because it rejects noise and hum pickup. On the AVM 20, XLR output voltage is twice that of RCA output voltage (or 6 dB higher). If your amplifier does not have balanced inputs, use Single-Ended RCA connection.

The AVM 20 also provides parallel outputs for a second Center channel and/or Subwoofer. If the Balanced SUB2 and CENTER2 outputs are not being used for this purpose, they can be re-configured to act as Balanced outputs for ZONE2 to ensure lower noise with longer cable runs (see sections 5.2 and 7.4.7).

If you're using a 6.1-channel speaker system, with one Rear speaker, Rear-L or Rear-R can be used as the output connection (see section 7.4.2).
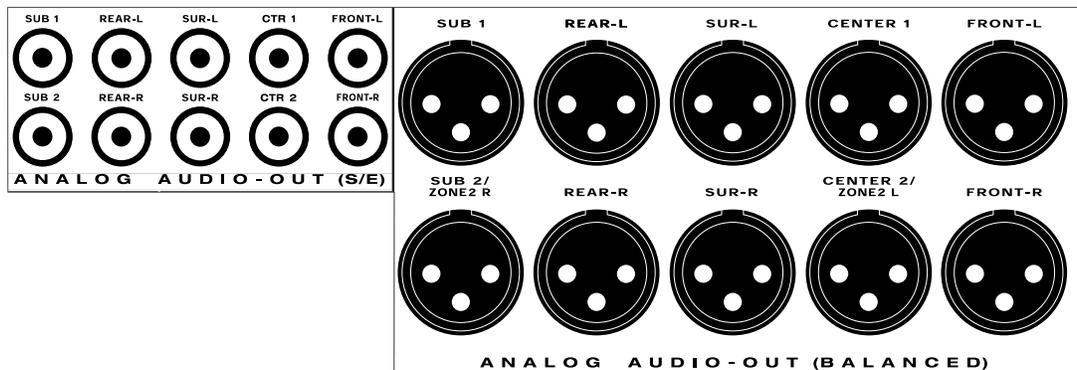
The Analog Audio RECORD outputs for your tape recorder and VCR are shown below, together with the outputs for ZONE2 and ZONE3 amplifiers:
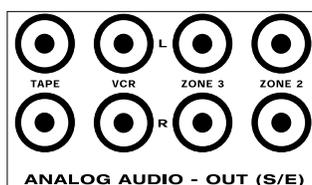
4.3 VIDEO CONNECTIONS

The AVM 20 provides video switching for three formats: Composite video, S-Video, and Component video. Format translation is not performed – if only S-Video is used from your VCR, only the S-Video output of the AVM 20 will have a signal to send to your TV monitor whenever the VCR Source is selected. **Always remember to select the matching video input on your TV monitor/projector.**

The choice of video format depends on the type that is available on your TV monitor/projector. If it only accepts Composite video, then there is no advantage in connecting S-Video or Component video outputs from your DVD player, VCR, or satellite receiver to the AVM 20, and Composite video connection must be used throughout the system (the same applies if you use S-Video or Component video).

The On-Screen Display is available in MAIN and ZONE2 when Composite or S-Video connections are used.

Composite Video:
This is the oldest video format. It combines the black/white and color information for transmission on a single coaxial cable with RCA connectors. These signals must then be separated again within the TV monitor by a comb filter, resulting in some degradation of video quality.
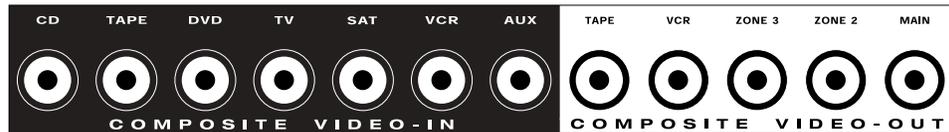
S-Video:
S-Video gives better video quality by transmitting color and brightness separately, using a multi-conductor cable with S-Video connectors (5-pin Mini DIN).
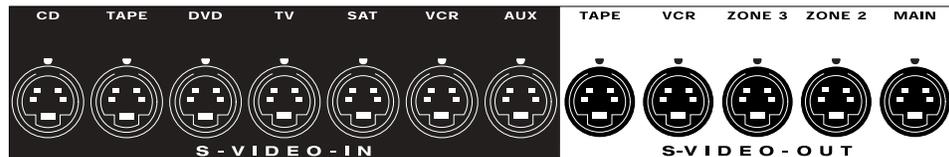
Component Video:
Component video is transmitted over three coaxial cables, is capable of progressive scan mode, and produces the highest video quality. The AVM 20 has four assignable Component video inputs. Note that all 3-wire connections must be made (Y, PR/Cr, PB/Cb). Component-In and Component-Out are compatible with HDTV (up to 1080p) and all other 3-wire component video formats.
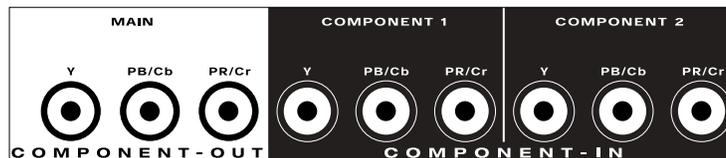
Note: Factory default settings are DVD for Component1 and SAT for Component2 (see section 7.4.5).

The AVM 20 does not provide On-Screen Display for the Component video output. If you use Component video, make sure either Composite or S-Video output is also connected from the AVM 20 to your TV. You can then change to that TV input to view the Setup Menu and make changes more conveniently (see section 7).

DVD Player, Satellite Receiver, and TV Connections with AVM 20 as Video Input Selector

Rear Panel of TV

Audio Out
L
R
Vari Fixed

Composite Video In
S-Video In

Y
Pb Component Video In
Pr

CATV In

Note:
For info on Component Video use, see sections 4.3, 7.4.5, and 7.4.10

Satellite Receiver

Audio Out
R L

Digital Out
RCA Toslink

Composite Video Out

S-Video Out

Component Video Out
Y
Pb
Pr

DVD Player

Audio Out
R L

Digital Out
RCA Toslink

Composite Video Out

S-Video Out

Component Video Out
Y
Pb
Pr

4.4   POWERED I.R. (INFRA RED) RECEIVERS

External IR repeaters allow the Remote Control to be used from other locations in your home. Once a repeater is wired to a selected room, connect it to one of the three I.R. RECEIVER inputs through the removable terminal block. To use the terminal block, remove it from the AVM 20, loosen the proper screw, insert the wire in the slot, tighten the screw onto the wire, and insert the terminal block into the AVM 20. See section 7.4.9 for Setup information.

In addition, there is no need for an external 12V supply to power the repeaters – use the AVM 20's built-in supply instead for up to three repeaters, and connect according to the repeater manufacturer's instructions.
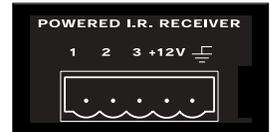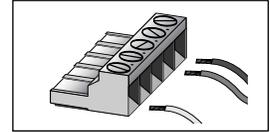
Note: For installers – The AVM 20's IR inputs sense modulated 38 kHz carrier, not demodulated data. With some control systems, an emitter face-to-face with an IR repeater may be needed.

4.5   I.R. (INFRA RED) EMITTERS

External IR emitters, also known as flashers, allow control of your source components from any location in your home that has an IR repeater wired to the back of the AVM 20. Position a flasher in front of the source components and connect to one of the two I.R. EMITTER outputs – IR commands coming in through the rear I.R. RECEIVER inputs are re-transmitted through the flashers.
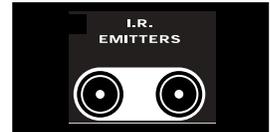
4.6   RELAY TRIGGERS

If your other components have provisions for a trigger, you can automatically turn them on and off together with the AVM 20, or when a specified Source is selected. Connect a trigger output from the AVM 20 to the trigger input of your power amplifier, TV monitor, etc., using a cable with 3.5mm mono mini plugs.
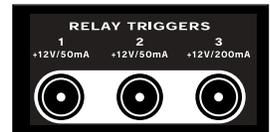
Trigger3 is designed to provide the extra current (up to 200 mA) required by relays in larger projectors and motorized screens. Depending on the equipment, a thicker wire gauge may be required (consult your dealer).

The AVM 20 provides flexible trigger options. From the factory, all the triggers are disabled. Through the Setup Menu, the conditions for enabling triggers can be specified (see section 7.4.9).

4.7   FM•AM ANTENNAS

To connect the FM antenna, first connect the two antenna wires to the screw terminals of the 75-ohm to 300-ohm adapter. Then connect the adapter to the FM ANTENNA connector on the AVM 20. If your local cable company provides FM service, connect the cable directly to the AVM 20 instead of using the adapter.

75-ohm to 300-ohm adapter
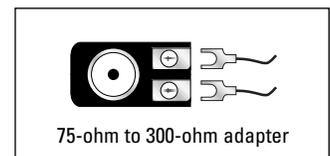
To connect the AM loop antenna, press the spring-loaded tabs of the AM ANTENNA connector, insert the bare ends of the wire from the loop antenna and release the tabs.

Once both antennas are connected, move each of them around until best reception is found. For the FM antenna, this will usually be in a "T" formation.
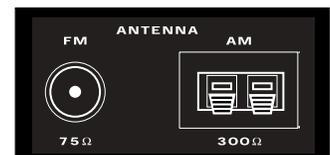
5. FRONT PANEL OPERATION

The AVM 20 is best understood as a piece of equipment that contains three control components in one chassis. Path best describes how this tremendous flexibility of the AVM 20 is arranged:

- It is first of all a state-of-the-art Music and Home Theater Preamplifier • Processor • Tuner (MAIN Path) with independent Source selection for recording (RECORD Path).

- It is also a high-end Whole House Entertainment Control Center that allows you to direct and adjust the output of a variety of source components to other rooms in your home (ZONE2 and ZONE3 Paths).

5.1   POWER ON/OFF

When turned on, the AVM 20 comes on at the pre-programmed volume setting (see section 7.4.8).

- **MAIN On:** There are various of ways of switching MAIN on:
  - Press **MAIN** in the POWER group (fig. right).
  - Press **MAIN** in the PATH group (fig. below).
  - If ZONE2 and ZONE3 are off, press **any SOURCE**, FM•AM preset (**1** through **6**), or **TUNE** to immediately power-up MAIN.
- **MAIN Off:** Press **MAIN** in the POWER group.
- **ZONE2 or ZONE3 On:** Press **ZONE2** or **ZONE3** in the POWER group or in the PATH group.
- **ZONE2 or ZONE3 Off:** Press **ZONE2** or **ZONE3** in the POWER group.
- **RECORD On:** Press **RECORD** in PATH group. MAIN will turn on simultaneously. The Front Panel Display will show MAIN Path information (see highlighted notation in section 5.2).
- **RECORD Off:** Press **MAIN** in the POWER group. This turns off MAIN and RECORD simultaneously.
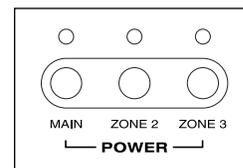
5.2   PATH SELECTION

Path routes Sources to the MAIN, ZONE2, ZONE3, or RECORD outputs.

- **MAIN:** As the name suggests, MAIN routes the audio/video sources to your main listening/viewing room, with outputs for your MAIN TV monitor and 7.1-channel audio.

- **ZONE2** and **ZONE3:** Routes any audio/video source to other listening/viewing rooms in your home. The chosen Source can be either the same or different from the Source selected in other paths. ZONE2 and ZONE3 each have outputs for a TV monitor and 2-channel audio. To listen to a Source that does not have Analog Audio-In connection, you must 'copy' it from MAIN (see section 5.2.1).

- **RECORD:** Allows you to record audio/video sources independently of what is selected in other paths. Composite and S-Video, and fixed-level analog audio outputs are available for your tape recorder and VCR. In addition, there are two configurable coaxial digital outputs: DIGITAL1 can be set to output the audio of any digital Source, or convert an analog Source to digital (must be set to Anlg-DSP in the Setup). DIGITAL2 can be set to output the same signal as DIGITAL1, or any of the Sources set to Digital. See sections 7.4.5 and 7.4.7 for an explanation on how to set input and output formats. As with ZONE2 and ZONE3, RECORD only operates with an analog input or by 'copying' MAIN (see section 5.2.1).
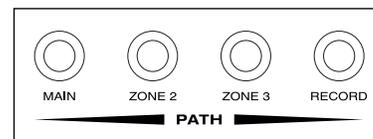
The AVM 20 automatically returns to MAIN a few seconds after an adjustment is made in ZONE2, ZONE3, RECORD, or HEADPHONE*. This is designed to prevent accidents. Say, for example, someone enters the MAIN room and turns up the volume – if the AVM 20 stayed in ZONE2, then the volume would increase in ZONE2, not MAIN. Since the person adjusting the volume doesn't hear any change, chances are he or she would just keep turning it up and wonder what's wrong, until something potentially 'bad' happens in ZONE2. If you've seen "The Party" and remember the hilarious scene where Peter Sellers messes with the console, you probably understand. The timeout setting can be changed in the Setup (see section 7.4.10).

* Except when MAIN is off or HEADPHONE is set to 'Mute' the MAIN speakers (see section 7.4.8).

5.2.1 COPYING THE MAIN PATH TO ZONE2, ZONE3, OR RECORD

This unique copy feature allows the Source selected in MAIN (e.g. DVD, CD, etc.) to also be directed to ZONE2, ZONE3, or RECORD from either analog or digital inputs.

The Source selected in MAIN can be copied to another Path as follows:

- **ZONE2** or **ZONE3:** Press and hold **MAIN**, then press **ZONE2** or **ZONE3** (can also be done in reverse).

- **RECORD:** Press and hold **MAIN**, then press **RECORD** (can also be done in reverse).

When MAIN is copied, the display reads **"–MAIN–> ZONE2"**, **"–MAIN–> ZONE3"**, or **"–MAIN–> REC"** after the selected Source, along with the information normally displayed.

Down-Mixing to 2-Channel Stereo:
The Center, Surround, and Rear channels can be mixed into the Left and Right Channels for the ZONE2, ZONE3, TAPE, and VCR outputs. This can be done by the DVD player or the AVM 20:

- **AVM 20 Down-mix:** If the digital audio output from your DVD player is connected to the AVM 20, the 2-channel down-mix from Dolby Digital or DTS will be done by the AVM 20 whenever you copy MAIN to ZONE2, ZONE3, or RECORD.

- **DVD Player Down-mix:** If the Left/Right analog outputs from your DVD player are connected to the AVM 20's Analog Audio-In, the Dolby Digital down-mix done by your DVD player can be used for ZONE2, ZONE3, TAPE, and VCR outputs, without having to copy MAIN. Note that DVD players do not normally provide a down-mix for DTS material.

  Note: Even when doing this, keep the digital output from your DVD player connected to the AVM 20, otherwise MAIN will not receive the digital signal needed for multi-channel output.

5.3 MASTER CONTROL KNOB

Besides being a Volume Control, the MASTER CONTROL KNOB also operates many other functions, including adjustment of Surround Mode Level / Bass / Treble / Balance; Path Bass / Treble / Path Balance; FM•AM tuning; Mode (Music / Pro Logic); THX Options; DD Dynamics and Display Brightness selection.

From this point in the manual, the MASTER CONTROL KNOB (MCK) will be referred to extensively.

5.4 SOURCE SELECTION

The AVM 20 accommodates up to nine external sources plus the built-in FM•AM Stereo Tuner.

The Sources on the front panel are: CD, 2-Ch BAL, 6-Ch S/E, TAPE, FM•AM, DVD, TV, SAT, VCR, and AUX.

You can also change the Source name as it appears on the Front Panel and On-Screen displays (see section 7.4.5).
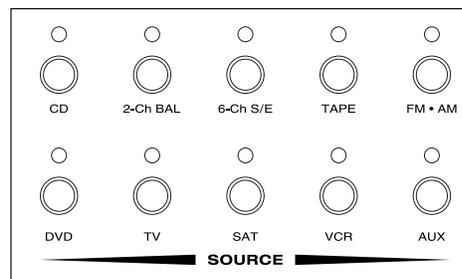
5.4.1 6-CHANNEL S/E INPUT

For the most part, the 6-Channel S/E input is intended for multichannel DVD-Audio and SACD players. If unused for 6-channel audio, the Front-Left and Front-Right inputs can be used as a 2-channel input.

When the 6-Channel S/E input is selected, the video signal from the DVD input will be routed to the Composite, S-Video, and MAIN Component (if assigned to DVD) outputs to allow track selection and navigation of the disc's menu.

The 6-Ch S/E audio can be routed to ZONE2, ZONE3, and RECORD outputs as long as Copy mode is used, so that a stereo down-mix can be created (see section 5.2.1).

5.4.2   FM•AM TUNER

The AVM 20 has a built-in FM•AM tuner, which is common to all Paths. The station that is selected in either MAIN, ZONE2, ZONE3, or RECORD is automatically shared with all other Paths.

Manual Tuning:
Select the desired band by pressing **FM•AM**, then press **TUNE** and rotate the Master Control Knob.
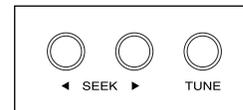
Automatic Tuning:
To automatically find the next station, press ◀ **SEEK** or **SEEK** ▶ . To scan and listen to all available radio stations for a few seconds, press and hold ◀ **SEEK** or **SEEK** ▶ for about a second. The ' ◀ **Sk** ' or ' **Sk** ▶ ' indicator on the display will change to ' ◀ **Prv** ' or ' **Nxt** ▶ '. To stop scanning, press one of the ◀ **SEEK** ▶ buttons to return to Seek mode, or press **TUNE** to tune manually. Press **TUNE** a second time to restore the regular functions and display (the TUNE function does not time out).

Presets:
18 FM and 6 AM stations can be stored in the AVM 20. The presets are divided into four banks of six. By repeatedly pressing **FM•AM**, the display will show that you are cycling through 'FM1', 'FM2', 'FM3', 'AM'. Once you have selected the desired bank, you can store the currently tuned radio station by pressing and holding one of the six preset keys (**1** through **6**) for about a second. You can even do this while scanning for stations. The lower line of the display briefly flashes once the station is stored. To recall a preset, select the bank that it is in, then press the respective preset key. To skip a preset, set it to 87.5 FM or 530 AM.
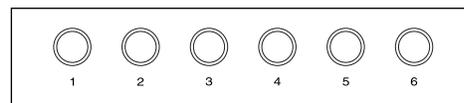
ST / HiB / M:
If FM reception is weak, switching a station out of stereo can reduce or eliminate unwanted hiss and noise. Press **ST / HiB / M** repeatedly to cycle through Stereo, Hi-Blend, or Mono. Hi-Blend offers an alternative to Mono, offering decreased noise without the complete loss of stereo – it decreases hiss and noise by reducing some stereo separation only at higher frequencies. The setting is memorized individually for each preset.

5.4.3   SIMULCAST

The AVM 20's Simulcast feature allows you to select an alternate audio Source to combine with the currently selected video Source. For example, you could view a sports event on TV while listening to your favorite FM/AM station. Simulcast is available for all Paths.

To change the audio Source without changing the currently selected video Source (e.g. TV), simply press and hold the desired video Source button for 2 seconds. The display will show the video Source (top line), audio Source and Path (bottom line), for the duration of the Function Timeout (see section 7.4.10) – press another Source button (e.g. FM/AM) during this period to change the audio Source.

```
TV              SIMULCAST
FM/AM                MAIN
```

Once the Function Time elapses, the regular display will return, but there will be a '+' beside the displayed audio Source to indicate Simulcast mode, and the Source Selection LED will still indicate the video Source.

To exit Simulcast mode, after the Function Timeout elapses, press and release any Source button (e.g. TV) – both the audio and video will switch to this selection.

5.5 VOLUME CONTROL

The volume of each Path is controlled separately.

- **MAIN:** Adjust using the Master Control Knob. If your speaker levels have been calibrated to 75 dB SPL, the THX Reference Level for movie playback is 0 dB, the level at which the film was originally presented in movie theaters (see Dialog Normalization and section 7.4.4).

- **ZONE2 or ZONE3:** Press ZONE2 or ZONE3, then adjust.

- **HEADPHONE:** Check that the display reads MAIN, press FRONTS twice, then adjust. MAIN can be set to mute whenever headphones are inserted (see section 7.4.8).
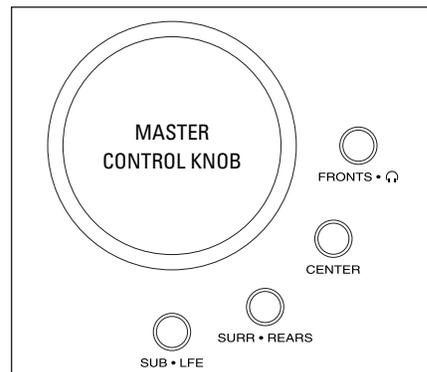
Dialog Normalization:

Dolby Digital program material contains non-audio data which the AVM 20 uses to adjust playback level, when necessary, so that volume variations between movies and programs are eliminated. Without Dialog Normalization, movies not encoded at standardized levels for the dialog could lose dynamic range – higher levels can result in distorted peaks, lower levels can result in quiet sounds disappearing into the noise floor. Dialog Normalization also ensures that Dynamics control (section 5.8.10) works as intended.

If the display reads "Dial Norm Offset -4.0 dB" at the start of a movie, it is indicating that the encoded level is higher than standard by 4.0 dB – the playback level of all channels is then automatically reduced by 4 dB.

Mute:

When MUTE is pressed, the audio of the selected Path is silenced (or reduced – see section 7.4.8). Press MUTE again, or rotate the Master Control Knob to adjust volume, and sound will return. MAIN, ZONE2, ZONE3, and Headphone are muted independently.
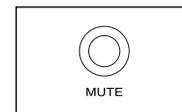
- **MAIN:** Press MUTE.
- **ZONE2** or **ZONE3:** Press ZONE2 or ZONE3, then press MUTE.
- **HEADPHONE:** Check that the display reads MAIN, press FRONTS twice then press MUTE.

Always make sure you are in the Path that you want to adjust before changing Volume or pressing Mute.

5.6 SURROUND MODE LEVELS

The AVM 20 memorizes the level of one group of channels relative to another separately for each surround mode (section 5.8), and for the 6-Ch S/E input. To make a change for the surround mode that is currently playing and showing on the display, adjust as follows:

- **Fronts:** Press FRONTS•🎧, then adjust (this changes Left, Center, and Right levels together).
- **Center:** Press CENTER, then adjust.
- **Surrounds:** Press SURR•REARS, then adjust.
- **Rears:** Press SURR•REARS twice, then adjust.
- **Subwoofer Only:** Press SUB•LFE, then adjust. **Pressing SUB•LFE twice** allows you to reduce the level of the LFE (Low Frequency Effect) output from any source with a ".1" LFE channel i.e. DVD, Laser Disc, DTS-CD, or satellite, while leaving the bass derived from the other channels at their original levels. Some of these discs exhibit prodigious levels of bass, and may need LFE adjustment.

Note: When listening in Stereo (CD, FM•AM, etc.) with Front speakers set to 'Large', the Subwoofer must be set to 'Super' if you want it to play (see section 7.4.2).

5.7   BASS / TREBLE / BALANCE

MAIN, ZONE2, ZONE3, and HEADPHONE all have independent Bass/Treble and Balance adjustments.

To change the Bass, Treble, or Balance of:
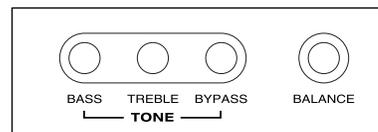
- **MAIN – All Speakers Simultaneously:** Press BASS, TREBLE, or BALANCE, then adjust.
- **MAIN – Fronts Only:** Press FRONTS•🎧, press BASS, TREBLE, or BALANCE, then adjust.
- **MAIN – Center Only:** Press CENTER, press BASS or TREBLE, then adjust.
- **MAIN – Surrounds Only:** Press SURR•REARS, press BASS, TREBLE, or BALANCE, then adjust.
- **MAIN – Rears Only:** Press SURR•REARS twice, press BASS, TREBLE, or BALANCE, then adjust.
- **ZONE2** or **ZONE3:** Press ZONE2 or ZONE3, press BASS, TREBLE, or BALANCE, then adjust.
- **HEADPHONE:** Press FRONTS• 🎧 twice, press BASS, TREBLE, or BALANCE, then adjust.

Note: Bass/Treble is not available for sources set to Anlg-Dir (see section 7.4.5).

Tone Bypass:
Pressing TONE BYPASS disables Bass/Treble in the selected Path. To enable Bass/Treble again, be certain you are in the Path that you want to adjust and press either BASS or TREBLE.

5.8   SURROUND MODES

A surround mode is signal processing that enhances original source material. There are two types of surround modes – those that apply to **stereo** source material and those that pertain to **5.1-channel** source material.
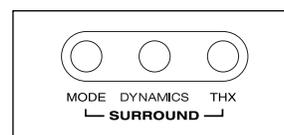
Stereo Source Material:
This includes both analog stereo and digital stereo (stereo PCM or Dolby Digital-2.0) source material. Various surround modes can be applied, some of which can provide up to 7.1 channels of output. These are described in detail in section 5.8.1. Each Source also keeps its own Mode setting, so you can, for example, set VCR to 'AnthemLogic-Cinema', and then set CD to 'AnthemLogic-Music' – when you switch to each Source, their respective Mode will be remembered.

Note: Surround modes are not available for inputs set to Anlg-Dir (see section 7.4.5).

Regarding analog VCR input: With analog, there is no way for any processor to detect Dolby Surround encoded material. Dolby Pro Logic must therefore be turned on manually by selecting it in the Mode options. All other stereo source surround modes are also available.

5.1-Channel Source Material:
The AVM 20 detects the digital format that you select in the DVD menu and automatically engages either Dolby Digital-5.1 or DTS-5.1 – whichever applies – to provide 5.1 discrete channels. Each format also has an additional Mode that can be applied – Dolby Digital EX (for Dolby D-5.1) and DTS Neo:6 (for DTS-5.1).

To make operation easier, these additional modes can only be turned on/off after the movie has started and the AVM 20 has detected the format. As soon as the display reads either Dolby D-5.1 or DTS-5.1, you can set the additional surround mode On or Off – there is usually plenty of time to do so when the film studio's logos are played at the beginning of the movie. The last setting for these additional surround modes is remembered so you do not have to change them from movie to movie (see sections 5.8.4 and 5.8.5).

Note: Surround modes for stereo source material are not available for 5.1-channel source material.

THX Options:
Provided that you are using two Rear speakers (in addition to Surrounds), all THX modes are available for Dolby Digital 5.1 and DTS 5.1 source material. THX Cinema is the only THX mode available for Stereo, Pro Logic, Pro Logic II-Movie and Neo:6-Cinema source material (THX is covered in detail in section 5.8.6).

> **Note:** Certain surround modes and THX modes offer 6.1 or 7.1 channels of output. These extra channels are for one or two Rear speakers. If you are using a 5.1 system and have Rears set to 'None' (Speaker Configuration menu – section 7.4.2), rear channel information will not be lost, but will remain in the L/R Surround speakers.

5.8.1   AnthemLogic™   ANTHEM LOGIC MUSIC/CINEMA

These are proprietary surround modes developed by Anthem that offer outstanding surround performance and can be applied to any 2-channel source material:

AnthemLogic-Music™
AnthemLogic-Music™ enhances the stereo listening experience without detracting from the stereo soundstage. Through extensive listening tests a very effective design was developed. This is a minimalist design that uses no echo or reverberation effects that could negatively affect the purity of the sound.

6.1 CHANNEL OUTPUT

AnthemLogic-Music™ provides up to 6.1 channels of output, depending on your speaker configuration – L/R Fronts, L/R Surrounds, L/R Rears and Subwoofer. AnthemLogic-Music™ does not utilize the Center Channel, to ensure that the purity of the stereo music soundstage will in no way be compromised.

AnthemLogic-Music™ is very effective in creating an expansive musical soundstage that psychoacoustically helps to remove the barrier of the listening room itself, and it does so in a completely non-intrusive, natural and very compelling way. This is the factory default 2-channel Mode for CD, 2-Ch BAL, TAPE, and FM•AM.

AnthemLogic-Cinema™
AnthemLogic-Cinema™ provides a large, enveloping and dynamic movie listening experience that makes 2-channel movies sound more like what is experienced in a state-of-the art movie theater. Again through extensive listening tests a very effective design was developed. This is also a minimalist design that avoids the use of echo effects, which could otherwise negatively affect the purity of the sound.

7.1 CHANNEL OUTPUT

Whereas other movie surround modes offer 5.1 channels of output, AnthemLogic-Cinema™ uses the rear speakers to provide up to 7.1 channels of output, depending on your speaker configuration.

AnthemLogic-Cinema™ provides the missing link that lets you experience 7.1 channels of output for full impact home theater sound, from any 2-channel stereo analog source such as VCR or TV, or any Dolby Digital 2-channel source, such as DVD or satellite. This is the factory default Mode for DVD, TV, SAT, VCR, and AUX.

5.8.2   DOLBY DIGITAL-2.0   DOLBY DIGITAL PRO LOGIC II

Many Dolby Digital-2.0 soundtracks contain a flag that can be used to automatically activate the Pro Logic II-Movie mode. The AVM 20 can be set to use this flag, or it can be set to override this flag.

With Dolby Digital-2.0 material playing, press **MODE** and use the Master Control Knob to select one of the following:

- **PLII-Movie: Auto** – engages Pro Logic II-Movie whenever the Dolby Surround flag is present. When there is no flag, the selected 2-channel Mode will apply (see section 5.8.3).

- **PLII-Movie: Off** – overrides the flag to allow selection of a different surround Mode (or Stereo) if you prefer. Once 'Off' is selected, press **MODE** a second time and set the surround mode of your choice.

5.8.3 SURROUND MODES FOR STEREO SOURCE MATERIAL

Press **MODE** and rotate the Master Control Knob to to cycle through the following surround modes:

Pro Logic II-Movie and THX must be Off for all Modes on this page to be available (see sec. 5.8.2 and 5.8.6).

Stereo:	No surround mode is applied.
AnthemLogic-Music:	**6.1** – One of Anthem's proprietary surround modes specifically designed to expand the stereo soundstage of stereo music in a very natural way without any loss of soundstage integrity or image focus. **The Center channel is not used.**
AnthemLogic-Cinema:	**7.1** – Another proprietary mode from Anthem, specifically designed to provide the impact of a large theater experience from 2-channel movies and TV programs.
Pro Logic II-Music:	**5.1** – Can be used with stereo music material. The following three parameters can be adjusted by pressing the **MODE** button one, two, or three times while in Pro Logic II-Music, and rotating the Master Control Knob:
	Center Width is adjustable from 0 to 7 – '0' places all Center sound in the Center speaker, while '7' places it equally in the Left and Right channels.
	Dimension helps achieve the desired front-to-back balance by providing seven steps of adjustment between the Surround and Center channels.
	Panorama is effective for recordings with strong left or right channel elements. When 'On', it extends the front stereo image to include the Surround channels.
Pro Logic II-Movie:	**5.1** – The next generation Dolby Surround decoder for 2-channel movies and TV programs, with improved spatiality and directionality.
Dolby Pro Logic:	**5.1** – Still available, in case there is a desire to hear program "as it used to be".
DTS Neo:6-Music:	**6.1** – Can be used with stereo music material to create 6.1 output channels. The center image can be adjusted by pressing **MODE** while in Neo:6 Music, and rotating the Master Control Knob:
	Center Image is adjustable from 0 to 5 – increasing the number gives more center channel prominence.
DTS Neo:6-Cinema:	**6.1** – A matrix decoder that can be used with all matrix-encoded movies. Separation is created by allowing various sounds to be placed at different points in the sound field simultaneously.
All-Channel Stereo:	**7.1** – The Left and Right channels are also sent to the Surround and Rear channels, while the Center channel and Subwoofer receive a combination of both. Some processing is used to retain image clarity. Useful for playing music at parties so that it can be heard with equal loudness in all parts of the room.
All-Channel Mono:	**7.1** – Combines the Left and Right channels and sends the signal to all speakers.
Mono:	Combines the Left and Right channels and sends the signal to the Center speaker.
Mono-Academy:	Gives a presentation closer to the original on movies made from the 1930s to 1960s, which relied on high-frequency rolloff for sound balance and to mask inherent hiss. Use only with old mono movies that sound overly bright and hissy.

Note: Channels of output are indicated in bold type – '.1' refers to derived subwoofer channel (not LFE).

5.8.4 DOLBY DIGITAL EX

Dolby Digital EX can be used to decode DVDs encoded in Dolby Digital Surround EX. Dolby Digital EX uses Dolby Pro Logic II to extract the rear channel information from the two Surround channels. Dolby Digital EX can also be applied to Dolby Digital 5.1 channel material that is not encoded in Dolby Digital Surround EX, however, the Rear channel information may or may not be pleasing depending on the soundtrack.

A list of movies encoded in Dolby Digital Surround EX can be found on the Dolby web site at www.dolby.com and THX web site at www.thx.com. Since most titles currently do not have a flag to engage Dolby Digital EX decoding automatically, be sure to set Dolby Digital EX to 'On' when playing unflagged Surround EX titles – while the DVD is playing, press **MODE** and use the Master Control Knob to turn Dolby Digital EX 'On'. To automatically decode DVDs that contain the Surround EX flag, set Dolby Digital EX to 'Auto'.

Note: To use Dolby Digital EX without THX processing, THX must be 'Off' (see section 5.8.6).

5.8.5 DTS-ES

There are two ways that Rear channel information is encoded in DTS-ES – Matrix and Discrete:

- **Matrix** – DTS-ES Matrix movies contain a matrixed Rear channel. The AVM 20 automatically engages Neo:6 to decode DTS-ES Matrix. As well, Neo:6 can be turned on manually and applied to DTS 5.1-channel material – while the DVD is playing, press **MODE** and use the Master Control Knob to turn Neo:6 'On'. A mono Rear channel will be derived from the Left and Right Surround channels. This Rear channel may or may not be pleasing depending the soundtrack and your preferences.

- **Discrete** – DTS-ES Discrete movies contain an independent Rear channel. When one of these movies is playing, the AVM 20 automatically engages DTS-ES Discrete decoding.

5.8.6 THX ULTRA2 / THX SURROUND EX

Each THX mode includes a specific combination of the following:

- **Re-Equalization** – De-emphasizes high frequencies in the front channels, and in THX Surround EX, the rear channels as well. Soundtracks commonly have pre-emphasized treble because they are mixed for movie theaters where high frequencies are usually absorbed. They can then sound overly bright when played back in the home. Re-Equalization restores the correct tonal balance for watching a movie soundtrack in a home theater environment. Some TV shows that are broadcast in Dolby Surround also benefit from Re-Equalization, whereas some movies on DVD may already have Re-EQ applied and do not require it from the processor. To defeat Re-EQ, press the **THX** button a second time after selecting a THX mode to display "RE-EQ Filters: On (Off)", then adjust.

- **Timbre Matching** – The human ear changes our perception of a sound depending on the direction from which the sound is coming. In a movie theatre, there is an array of surround speakers so that the surround information is all around you. In a home theatre, you use only two speakers located to the side of your head. Timbre Matching, which includes Re-EQ, filters the information going to the surround speakers so that they more closely match the tonal characteristics of the sound coming from the front speakers. This ensures seamless panning between the front and surround speakers.

- **Adaptive Decorrelation** – In a movie theatre, a large number of surround speakers help create an enveloping surround sound experience, but in a home theatre there are usually only two speakers. Unless you are using properly positioned dipoles, surround speakers can sound like headphones that lack spaciousness and envelopment – they will also collapse into the closest speaker as you move away from the middle seating position. Adaptive Decorrelation senses the presence of identical surround channels (mono) and slightly changes one surround channel's time and phase relationship with respect to the other. This expands the listening position and creates – with only two speakers – the same spacious surround experience found in a movie theatre. Adaptive Decorrelation does not operate when the surround channels are different, as is often the case in discrete multichannel source material.

- **ASA (Advanced Speaker Array)** – ASA is a proprietary THX technology that processes the sound fed to the two surround and two rear speakers to provide an optimal surround sound experience. When you set up your home theater system using all 7.1 speaker outputs (L-Front, Center, R-Front, R-Surround, R-Rear, L-Rear, L-Surround, Subwoofer), placing the two Rear speakers close together will provide the largest sweet spot. If for practical reasons you have to place the Rear speakers further apart, you will have to go to the Listener Position menu (section 7.4.3) and choose the setting that most closely corresponds to the speaker spacing to re-optimize the surround soundfield.

> ASA is only used in two THX modes; **THX Ultra2 Cinema** and **THX MusicMode** (see below).

Depending on source material and speaker configuration, available THX Modes are as follows:

THX Cinema:

5.1 output with **Stereo** or **Dolby Pro Logic**
5.1 output with 5.1 Movies – **DD-5.1**, **DTS-5.1**
Processing: Re-Equalization, Timbre Matching, Adaptive Decorrelation

5.1 output with **Dolby Pro Logic II-Movie**
Processing: Re-Equalization, Timbre Matching

6.1 output with **Neo:6 Cinema**
Processing: Re-Equalization, Timbre Matching

> **Note:** THX Cinema is the only THX mode available for use with Stereo or Dolby Digital 2.0. When THX Cinema is 'On', Dolby Pro Logic II-Movie is automatically engaged. Alternatively, Dolby Pro Logic or DTS Neo:6-Cinema may be selected for use with THX Cinema. Other Surround Modes are not available and do not appear when pressing MODE.

THX Ultra2 Cinema:

7.1 output with 5.1 Movies – **DD-5.1** or **DTS-5.1**
Processing: Re-Equalization, Timbre Matching, Adaptive Decorrelation, ASA (Cinema)

THX Ultra2 Cinema mode plays 5.1 movies using all 7.1 speakers giving you the best possible THX movie watching experience with 5.1 program material. In this mode, ASA processing blends the L/R-Surround speakers and L/R-Rear speakers providing the optimal mix of ambient and directional surround sounds.

THX MusicMode:

7.1 output with 5.1 Music – **DD-5.1**, **DTS-5.1**, **DVD-Audio**, **multichannel SACD**
Processing: Timbre Matching, Adaptive Decorrelation, ASA (Music)

THX MusicMode can be selected when playing multi-channel music. In this mode THX ASA processing is applied to the surround channels of all 5.1 channel encoded music sources to provide a wide stable rear soundstage.

> **Note:** THX Ultra2 Cinema and MusicMode are for 5.1 material only – they do not work with Stereo or program material encoded in Dolby Surround.

THX Surround EX: **6.1** output with **Dolby Digital EX**
Processing: Re-Equalization,Timbre Matching

THX Surround EX – Dolby Digital Surround EX is a joint development of Dolby Laboratories and the THX division of Lucasfilm Ltd.

In a movie theater, film soundtracks that have been encoded with Dolby Digital Surround EX technology are able to reproduce an extra channel which has been added during the mixing of the program. This channel (called Surround Back, but named Rear in the AVM 20), places sounds behind the listener in addition to the currently available L-Front, Center, R-Front, R-Surround, L-Surround and Subwoofer channels. This additional channel provides the opportunity for more detailed imaging behind the listener and brings more depth, spacious ambience, and sound localization than ever before.

Movies that were created using the Dolby Digital Surround EX technology may exhibit wording to that effect on the packaging when released on DVD. A list of movies created using this technology can be found on the Dolby web site at www.dolby.com. A list of DVD titles encoded with this technology can be found on the THX web site at www.thx.com.

Bearing the THX Surround EX logo, the AVM 20 will faithfully reproduce this technology in the home when in THX Surround EX mode.

The AVM 20 also allows you to engage THX Surround EX during playback of 5.1 channel material that is not Dolby Digital Surround EX encoded. The information delivered to the Rear channel will be program dependent and may or may not be pleasing depending on the soundtrack and your listening tastes.

> **Note:** Other THX modes can be applied to non-flagged Dolby Digital Surround EX DVDs, however Rear channel information will be lost. If you are applying THX to non-flagged DVDs, be sure to select THX Surround EX.
>
> With flagged Dolby Digital EX, other THX modes are incompatible since they do not retain the decoded Rear channel.

THX for DTS-ES: **6.1** output with **DTS Neo:6, DTS-ES Matrix,** and **DTS-ES Discrete**
Processing: Re-Equalization,Timbre Matching

THX processing can also be engaged when playing DTS-ES material (Matrix or Discrete), and DTS 5.1-channel material with Neo:6 activated.

Outputs indicated are the number of output channels as follows:
5.1 = L-Front, Center, R-Front, R-Surround, L-Surround, Subwoofer
6.1 = L-Front, Center, R-Front, R-Surround, Rear*, L-Surround, LFE/Subwoofer
7.1 = L-Front, Center, R-Front, R-Surround, R-Rear, L-Rear, L-Surround, LFE/Subwoofer

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* If two rear speakers are used, the same Rear channel information will go to both.

Note: In compliance with THX requirements, Bass/Treble, Surround Mode Level, and Balance adjustments are set to +0.0 dB whenever a THX mode is selected, after which you can make adjustments with THX engaged if you wish to do so. When THX is turned 'Off', previous settings are restored, except for Balance (see sections 5.6 and 5.7). Also note that due to the nature of the digital bitstream, any adjustments made while THX is engaged will be reset to +0.0 dB if the program is paused for longer than 3 seconds.

THX Ultra 2 Operation Overview

Key:		
Re-EQ	–	De-emphasizes treble. Defeatable by turning Re-EQ:Off
Timbre	–	Matches the sound character, or timbre, of the surround channels to the front channels.
Adp-Decor	–	When content of L/R-Surrounds is mono, adjusts time and phase to restore spaciousness.
ASA (Cin)	–	Blends Surrounds and Rear for optimal mix of ambient and directional surround sounds.
ASA (Mus)	–	Applied to the Surrounds of all 5.1 music sources to provide a wide stable rear soundstage.

Program	Decoding	THX Available	Outputs	THX Processing
Stereo	**Surround Mode Selected**	**Off**	**Varies**	**None** (Since THX is set to Off)
	PL II-Movie (Default[†])	**THX Cinema**	**5.1**	**Re-EQ, Timbre**
	Dolby Pro Logic (Selected[†])	**THX Cinema**	**5.1**	**Re-EQ, Timbre, Adp-Decor**
	Neo:6 Cinema (Selected[†])	**THX Cinema**	**6.1**	**Re-EQ, Timbre**
Dolby Digital 5.1	**Dolby Digital**	**Off**	**5.1**	**None** (Since THX is set to Off)
	Dolby Digital	**THX Cinema**	**5.1**	**Re-EQ, Timbre, Adp-Decor**
	Dolby Digital	**THX Ultra2 Cinema**	**7.1**	**Re-EQ, Timbre, Adp-Decor, ASA (Cin)**
	Dolby Digital	**THX MusicMode**	**7.1**	**Timbre, Adp-Decor, ASA (Mus)**
	Dolby Digital EX[*]	**Off**	**6.1**	**None** (Since THX is set to Off)
	Dolby Digital EX[*]	**THX Surround EX**	**6.1**	**Re-EQ, Timbre**
DTS 5.1	**DTS**	**Off**	**5.1**	**None** (Since THX is set to Off)
	DTS	**THX Cinema**	**5.1**	**Re-EQ, Timbre, Adp-Decor**
	DTS	**THX Ultra2 Cinema**	**7.1**	**Re-EQ, Timbre, Adp-Decor, ASA (Cin)**
	DTS	**THX MusicMode**	**7.1**	**Timbre, Adp-Decor, ASA (Mus)**
	DTS+Neo:6	**Off**	**6.1**	**None** (Since THX is set to Off)
	DTS+Neo:6	**THX for DTS Neo:6**	**6.1**	**Re-EQ, Timbre**
DTS-ES Matrix[§]	**DTS+Neo:6**	**Off**	**6.1**	**None** (Since THX is set to Off)
	DTS+Neo:6	**THX for DTS-ES Mtx**	**6.1**	**Re-EQ, Timbre**
DTS-ES Discrete[§]	**DTS-ES Discrete**	**Off**	**6.1**	**None** (Since THX is set to Off)
	DTS-ES Discrete	**THX for DTS-ES Dis**	**6.1**	**Re-EQ, Timbre**

[†] Setting THX Cinema 'On' with stereo program defaults to Pro Logic II-Movie +THX Cinema. By pressing MODE, you can change this to Pro Logic or Neo:6 Cinema, however, THX can not be applied to any other surround mode.

[*] DVDs with Dolby Digital Surround EX may be flagged for auto-detection by the AVM 20.

[§] DVDs with DTS-ES Matrix and DTS-ES Discrete are flagged for auto-detection by the AVM 20.

Outputs indicated are the number of output channels as follows:

5.1 = L-Front, Center, R-Front, R-Surround, L-Surround, LFE/Subwoofer

6.1 = L-Front, Center, R-Front, R-Surround, Rear*, L-Surround, LFE/Subwoofer

7.1 = L-Front, Center, R-Front, R-Surround, R-Rear, L-Rear, L-Surround, LFE/Subwoofer

*If two Rear speakers are used, the same Rear channel information will go to both.

5.8.7 Mode and THX Operation for <u>Stereo</u> Program Material (THX operation is optional)

Note: THX must be Off for all Modes on this page to be available (see section 5.8.6).

Stereo Program

Press Mode → **Cycle Through Modes:** Select using MCK (or North/South keys on remote control – see section 6)

If program is Dolby D-2.0, use MCK (or N/S keys) and set PLII-Movie to Off to make all Modes available, then press MODE again to select (section 5.8.2).

Stereo (2-Ch)

AnthemLogic-Music (6.1)

AnthemLogic-Cinema (7.1)
→ **ANTHEM LOGIC** MUSIC / CINEMA → **See section 5.8.1**

Dolby PLII-Music (5.1) →
- **Press Mode Once** → **Center Width:** Adjust using MCK (or N/S keys)
  Increasing # <u>decreases</u> Center level and places it into L/R
- **Press Mode Twice** → **Dimension:** Adjust using MCK (or N/S keys)
  Front-to-back balance – Center (C----+----S) Surrounds
- **Press Mode 3 Times** → **Panorama: On** using MCK (or N/S keys)
  Extends the front stereo image to include Surrounds

If THX is turned on at any time, PLII-Movie+ THX Cinema is engaged.

THX Options

Dolby PLII-Movie (5.1) →
- **Press THX** → **THX Cinema: On** using MCK (or N/S keys)*
  Processing – Re-EQ, Timbre Matching
  Output channels – 5.1 (LF, C, RF, RS, LS, Sub)
- **Press THX Twice** → **RE-EQ Filters: On/Off** using MCK (or N/S keys)

THX Options

Dolby Pro Logic (4.1) →
- **Press THX** → **THX Cinema: On** using MCK (or N/S keys)*
  Processing – Re-EQ, Timbre Matching, Adp.Decorrelation
  Output channels – 5.1 (LF, C, RF, RS, LS, Sub)
- **Press THX Twice** → **RE-EQ Filters: On/Off** using MCK (or N/S keys)

DTS Neo:6 Music (6.1) →
- **Press Mode** → **Center Image:** Adjust using MCK (or N/S keys)
  Increasing the number makes Center more prominent

THX Options

DTS Neo:6 Cinema (6.1) →
- **Press THX** → **THX Cinema: On** using MCK (or N/S keys)*
  Processing – Re-EQ, Timbre Matching
  Output channels – 6.1 (LF, C, RF, Rear, RS, LS, Sub)
- **Press THX Twice** → **RE-EQ Filters: On/Off** using MCK (or N/S keys)

All Channel Stereo (7.1)

All Channel Mono (7.1)

Mono (Ctr or L/R)

Mono Academy (Ctr or L/R)

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* Setting THX Cinema: On with 2-channel program overrides all other Modes and defaults to Dolby Pro Logic II-Movie+THX Cinema. By pressing Mode, you can change this to Dolby Pro Logic or Neo:6 Cinema. **THX cannot be applied to other Surround modes.**

Processing for THX Cinema (for complete descriptions see section 5.8.6):
- **Re-Equalization** – De-emphasizes treble. Defeatable by turning RE-EQ:Off.
- **Timbre Matching** – Matches the sound character, or timbre, of the surround channels to the front channels.
- **Adaptive Decorrelation** – When content of L/R Surrounds is mono, adjusts time and phase to restore spaciousness.

5. **FRONT PANEL** OPERATION continued …

5.8.8 Mode and THX Operation for <u>Dolby Digital 5.1</u> Program Material (THX operation is optional)

Dolby Digital 5.1 → **THX Options**

Press THX →	**Cycles THX Modes:** Select using MCK (or N/S keys on remote control), or Off

Select THX Mode →

THX Cinema
Processing – Re-EQ, Timbre Matching, Adp.Decorrelation
Channels – 5.1 (LF, C, RF, RS, LS, LFE/Sub).

THX Ultra2 Cinema
Processing – Re-EQ, Timbre Matching, Adp.Decorrelation, ASA (Cinema)
Output channels – 7.1 (LF, C, RF, RS, RR, LR, LS, LFE/Sub)

THX MusicMode
Processing – Timbre Matching, Adp.Decorrelation, ASA (Music)
Output channels – 7.1 (LF, C, RF, RS, RR, LR, LS, LFE/Sub)

THX Surround EX
Processing – Re-EQ, Timbre Matching
Output channels – 6.1 (LF, C, RF, Rear, LR, LS, LFE/Sub)

Press THX 2nd Time → **RE-EQ Filter: On/Off** using MCK (or N/S keys)

**Non-Flagged
Dolby Digital EX**

Press Mode → **Dolby Digital EX: On** using MCK (or North/South keys on remote control)
Output Channels – 6.1 (LF, C, RF, RS, LS, Rear, LFE/Sub)

THX Options

Press THX → **Cycles THX Modes:** Select using MCK (or N/S keys on remote control), or Off

Select THX Mode → **THX Surround EX**
Processing – Re-EQ, Timbre Matching
Output channels – 6.1 (LF, C, RF, RS, Rear, LS, LFE/Sub)

Press THX 2nd Time → **RE-EQ Filter: On/Off** using MCK (or N/S keys)

**Flagged
Dolby Digital EX** → **Autodetected**
Output channels – 6.1 (LF, C, RF, RS, Rear, LS, LFE/Sub)

THX Processing (for complete descriptions see section 5.8.6)**:**

- **Re-Equalization** – De-emphasizes treble. Defeatable by turning RE-EQ:Off.
- **Timbre Matching** – Matches the sound character, or timbre, of the surround channels to the front channels.
- **Adaptive Decorrelation** – When content of L/R-Surrounds is mono, adjusts time and phase to restore spaciousness.
- **ASA (Cinema)** – Blends Surrounds and Rear for optimal mix of ambient and directional surround sounds.
- **ASA (Music)** – Applied to the Surrounds of all 5.1 music sources to provide a wide stable rear soundstage.

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5.8.9 Mode and THX Operation for <u>DTS</u> Program Material (THX operation is optional)

DTS 5.1 ──▶ **THX Options**

Press THX ─▶ **Cycles THX Modes:** Select using MCK (or N/S keys on remote control), or Off

Select THX Mode ─▶ **THX Cinema**
Processing – Re-EQ, Timbre Matching, Adp.Decorrelation
Channels – 5.1 (LF, C, RF, RS, LS, LFE/Sub).

THX Ultra2 Cinema
Processing – Re-EQ, Timbre Matching, Adp.Decorrelation, ASA (Cinema)
Output channels – 7.1 (LF, C, RF, RS, RR, LR, LS, LFE/Sub)

THX MusicMode
Processing – Timbre Matching, Adp.Decorrelation, ASA (Music)
Output channels – 7.1 (LF, C, RF, RS, RR, LR, LS, LFE/Sub)

THX for DTS Neo:6 (automatically engages Neo:6)
Processing – Re-EQ, Timbre Matching
Output channels – 6.1 (LF, C, RF, Rear, LR, LS, LFE/Sub)

Press THX 2nd Time ─▶ **RE-EQ Filter: On/Off** using MCK (or N/S keys)

DTS 5.1

Press Mode ─▶ **DTS Neo:6: On** using MCK (or North/South keys on remote control)
Output channels – 6.1 (LF, C, RF, RS, LS, Rear, LFE/Sub)

THX Options

Press THX ─▶ **Cycles THX Modes:** Select using MCK (or N/S keys), or Off

Select THX Mode ─▶ **THX for DTS Neo:6 / DTS-ES Mtx / DTS-ES Dis**
Processing – Re-EQ, Timbre Matching
Output channels – 6.1 (LF, C, RF, RS, Rear, LS, LFE/Sub)

Press THX 2nd Time ─▶ **RE-EQ Filter: On/Off** using MCK (or N/S keys)

DTS-ES Matrix
DTS-ES Discrete ─▶ **Autodetected**
Output channels – 6.1 (LF, C, RF, RS, Rear, LS, LFE/Sub)

THX Processing (for complete descriptions see section 5.8.6)**:**

• **Re-Equalization**	– De-emphasizes treble. Defeatable by turning RE-EQ:Off.
• **Timbre Matching**	– Matches the sound character, or timbre, of the surround channels to the front channels.
• **Adaptive Decorrelation**	– When content of L/R-Surrounds is mono, adjusts time and phase to restore spaciousness.
• **ASA (Cinema)**	– Blends Surrounds and Rear for optimal mix of ambient and directional surround sounds.
• **ASA (Music)**	– Applied to the Surrounds of all 5.1 music sources to provide a wide stable rear soundstage.

5.8.10 DYNAMICS

This allows you to control the difference between the softest and loudest passages on 5.1/6.1-channel soundtracks, as long as the soundtrack contains dynamic scaling information and at least 5.1 speakers are used. Press **DYNAMICS** and then use the Master Control Knob to cycle through the following settings:

Normal: Reproduces the full dynamic range of the recording without changing it.

Reduced: Allows the quieter parts to be heard more easily, and works by raising the level of quieter sounds and/or reducing the level of louder sounds.

Late Night: Reduces the softest-to-loudest difference even further. The quietest passages can be heard even more easily, and prevents having to hear sudden loud passages.

Note: Because setting Dynamics back to 'Normal' can sometimes be forgotten, Dynamics resets to 'Normal' automatically whenever Main power is turned off.

5.9   FRONT PANEL DISPLAY

The intensity of the Front Panel display and LED indicators can be changed. Press **DISPLAY** and then use the Master Control Knob to select High, Medium, Low, or Off. The High, Medium, and Low intensities, and the Front Panel Wake-Up can be modified, as can the time-to-rest when the display will dim (see section 7.4.10).
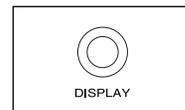
5.10   STATUS / SETUP

This button has two functions: It displays information regarding current Software, settings, and modes of operation. It also lets you access the Setup.
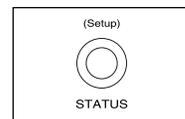
Status:
Press, Release, Press to cycle through display screens that show the following:

- **Software version**, **day**, and **time**.

- **Input Signal:** Bit rate / sample rate of digital source material being played, or Analog.

- **Input Format:** Shows which channels are receiving information from the selected Source.

- **Listen Format:** Which channels are producing output – depends on Audio-In Format and Mode.

- **Mode:** The surround Mode that is in use (see section 5.8).

- **Dynamics:** Normal, Reduced, or Late Night.

- **Tone Controls:** Enabled or Bypassed.

- **Sleep Mode:** Enabled or Disabled (see section 6.5).

- **All Timers:** Enabled or Disabled (see section 7.4.1).

- **Serial Number:** This should match the number on the rear panel sticker and shipping carton – contact Anthem immediately if any of the numbers do not match.

When in ZONE2 or ZONE3, information related only to the selected Path is displayed.

Setup:
Press and hold for a few seconds to enter the Setup. Press **BACK** to exit. Please read section 7 before exploring the Setup.

WARNING: If you do explore the Setup, do not enter passwords without reading section 7 first.

Dr. Jekyll and Mr. Hyde, as you may know, were two very different personalities, even though they were the same person. Well, the AVM 20 Remote Control is the host to NINE different personalities! (All of them 'good', of course.)

The AVM 20 Universal Learning Remote Control has all of the same functions as the front panel buttons and is operated in a similar way, but there are some differences. Please take the time to read this section to fully understand all the functions of the AVM 20 remote Control.

The keys labeled in this illustration show those that have a **different** method of operation from their front panel counterparts. Those shown in ***bold italics*** indicate keys that are unique to the Remote Control and not found on the Front Panel. For a detailed layout diagram see section 3.3.

To install the batteries, remove the cover that is on the bottom of the remote, and be sure that they're installed with the correct polarity. Down the road, if the keys don't light up when they're pressed, and the red LED blinks twice, it's an indication that the batteries need replacement – use only 'AA' alkaline.

Before we get started, we have to give the remote a little attitude adjustment – set the 'personality' to MAIN by pressing **MAIN** near the top of the remote.

> **Note: The Path / Component keys do not transmit any commands to the AVM 20, or anywhere else. They only determine where subsequent commands are sent. For example, if ZONE2 is selected followed by VOL+, then the volume changes in ZONE2 while MAIN and all other components remain unaffected.**

Labels around the remote illustration:

- IR Transmitter
- Power ON
- Transmission Indication
- Learning Mode
- Path/Component ('Personality')
- FM•AM Presets
- *FM•AM Direct Entry*
- *Audio Group Delay*
- *FM•AM Presets UP / DOWN*
- *AVM 20 Power OFF*
- *Sleep and Timers Enable/Disable*
- • FM•AM Seek / Tune
- • Level / Bass / Treble / Balance / Display / Timers Adjustments
- • Mode / DD Dynamics / THX Options selection
- • Navigation (North / South / East / West)
- *Source Seek*
- RECORD Path
- MAIN Source Copy
- Source Selection

6.1 POWERING THE AVM 20 ON AND OFF

Two separate keys are used to turn the AVM 20 On/Off, because discrete power commands are required in most custom installations.

The ⏻ power key in the top right corner turns the AVM 20 Power ON. The red **SSP OFF** key near the middle turns the AVM 20 Power OFF.

The AVM 20 can be turned ON and OFF as follows:

- **MAIN ON:** Press **MAIN** in Path/Component, then press ⏻ .
- **MAIN OFF:** Press **MAIN** in Path/Component, then press **SSP OFF**.
- **ZONE2** or **ZONE3 ON:** Press **Z2** (or **Z3**) in Path/Component, then press ⏻ .
- **ZONE2** or **ZONE3 OFF:** Press **Z2** (or **Z3**) in Path/Component, then press **SSP OFF**.

6.2   PATH SELECTION

- **MAIN:**   Press **MAIN** in Path/Component, then press ⏻.

- **ZONE2** or **ZONE3:**   Press **Z2** (or **Z3**) in Path/Component, then press ⏻.

- **RECORD:**   Press **MAIN** in Path/Component, press ⏻, then press **REC** in SSP Path.

6.2.1   COPYING THE MAIN PATH TO ZONE2, ZONE3, OR RECORD

Select a MAIN Source first and then for:

- **ZONE2** or **ZONE3:**   Press **Z2** (or **Z3**) in Path/Component, then press **COPY**.

- **RECORD:**   Press **MAIN** in Path/Component, press **REC** in SSP Path, then press **COPY**.
                         Note: The **REC** key only works when Path/Component is in **MAIN**.

Note: While all Analog Sources are simultaneously available to MAIN, ZONE2, ZONE3, and RECORD, the COPY function is the only way to direct a MAIN **Digital** Source to ZONE2, ZONE3, or RECORD.

6.3   SOURCE SELECTION

After selecting the desired Path (MAIN, ZONE2, ZONE3, or RECORD), press one of ten SOURCE keys in the SSP Source group near the bottom.

6.3.1   SOURCE SEEK (Remote Control Only)

The SOURCE SEEK keys are an easy way to find the active Sources. The ◀◀ ▶▶ keys go to the previous and next active Source while the ▶ key advances one Source at a time.

6.4   DIRECT FM•AM STATION ENTRY (Remote Control Only)

When using the FM•AM Tuner, the station frequency can be entered as a four-digit number. For example, to tune into 98.3 FM, press and hold **SELECT** until the display shows "<blank>0.0" in the lower left corner, then press **0**, **9**, **8**, **3**.

6.5   SLEEP TIMER (Remote Control Only)

If you would like to go sleep while listening to a program or music, the **Sleep Timer** will automatically turn the AVM 20 power off after a preselected time. So when you find yourself falling asleep at the 'tube', take the Remote Control and:

- Select the desired Path (MAIN, ZONE2, or ZONE3), then press **SLEEP** (the Sleep timer will operate for that Path only).

- The first **SLEEP** keystroke always resets the timer to 30 minutes. Additional keystrokes then cycle as follows: Second=60, third=90, fourth=Disabled.

- Once set, the time remaining appears as the number following '**Zzz**' in the display.

6.6   ENABLE / DISABLE TIMERS (Remote Control Only)

To enable or disable all timers without entering the Setup, press and hold the **SLEEP** key until the display shows "All Timers", then use the ▲ ▼ keys to enable/disable (see section 7.4.1).

6.7   AUDIO GROUP DELAY (Remote Control Only)

To adjust Audio Group Delay without entering the Setup, press and hold the **DISPLAY** key until the display shows "Audio Group Delay", then use the ◀ ▶ keys to move from digit to digit and the ▲ ▼ keys to adjust. This can be done while viewing the picture and listening to the soundtrack simultaneously (see section 7.4.5).

6.8   CONTROLLING OTHER COMPONENTS

The AVM 20 Remote Control can be set up to control your TV, DVD player, CD player, VCR, and satellite receiver. It contains a very extensive set of Remote Control codes from many different manufacturers, which can be entered to virtually duplicate another Remote Control. Alternatively, the Learn function can be used to customize each key.

6.8.1   ENTERING MANUFACTURER'S CODES

In Appendix A at the back of this manual you will find the manufacturer's codes available for programming the AVM 20 remote. To enter a code:

1. Press the Path/Component key (e.g. **DVD**).

2. Press and hold **LEARN** until the LED flashes twice.

3. Enter the **four-digit code** from Appendix A. The LED should blink twice.

> Codes can **only** be used with their respective Path/Component key. For example, a VCR code can not be programmed in the DVD Path/Component key.

6.8.2   SEARCHING FOR A CODE

If a code for your component is not listed in Appendix A:

1. Turn the component on (e.g. TV).

2. Press the matching Path/Component key (e.g. **TV**).

3. Press and hold **LEARN** until the LED flashes twice.

4. Press **9**, **9**, **1**.

5. Aim the remote towards the TV, and alternate between pressing ⏻ and **TV**.

6. Stop once the TV turns off. Immediately press and release **LEARN** to lock the code.

7. If, for future reference, you want to know what the code is, press and hold **LEARN** until the LED flashes twice and then press **9**, **9**, **0**, **1**. Wait 3 seconds and count the number of flashes. The number of flashes represent the first digit (i.e. 3 flashes = 3, no flash = 0). Next, press **2** for the second digit, **3** for the third digit, and **4** for the fourth digit, and count the number of flashes each time. Record this code number in Appendix A for future reference.

6.8.3   VOLUME LOCK

After entering a code for your TV or satellite receiver, you may find it inconvenient to switch the Path/Component keys back and forth when you alternate between say, changing channels on your TV and adjusting the volume of MAIN (AVM 20). Not to worry, the Volume Lock feature takes care of this. When engaged, the volume keys adjust MAIN volume, regardless of which Path/Component is selected. You can then leave your Path/Component selection in TV and no longer have to press MAIN first to adjust the volume of the AVM 20.

In the following example, MAIN volume is locked onto every Path/Component selection except ZONE2:

To Engage Volume Lock for MAIN:

    1. Press and hold **LEARN** until the LED flashes twice.

    2. Press **9**, **9**, **3**.

    3. Press **MAIN**.

At this point, the Volume and Mute keys now control MAIN, no matter which of the eight Path/Component selections the Remote Control is in. However, any individual Path/Component selection can be unlocked if necessary.

To Disengage Volume Lock for ZONE2 (or ZONE3), and re-engage the ZONE2 (or ZONE3) Volume Control**:**

    4. Press **ZONE2** (or ZONE3).

    5. Press and hold **LEARN** until the LED flashes twice.

    6. Press **9**, **9**, **3**.

    7. Press **VOL –**.

The Volume and Mute keys now control MAIN for every Path/Component selection except for ZONE2. You may continue to unlock other Path/Components one at a time. To unlock all Path/Components at once and restore the default setting, press **VOL+** instead of **VOL –** in step 7.

6.8.4   LEARN FUNCTION

The AVM 20 Remote Control has the ability to learn the command of an individual key from almost any other remote control. When a new command is programmed onto a key, the original command is still available by pressing LEARN before pressing the key. We'll call this the Layer1 method.

If the original command of a particular key is used more than the learned command, it might be better to program the learned command in Layer2. This means that when a taught key is pressed, the original command functions as always, and the learned command is accessed by pressing LEARN before pressing the key. In essence, this is the reverse of the Layer1 method.

> The learned commands are retained in the Path/Component selection into which they were programmed. For instance, if the ◄ ► ▲ ▼ navigation keys are programmed into the DVD selection, they won't perform the learned command if another Path/Component is selected.

Limitations on Learning:
Before getting to the learning procedure, please read the following limitations:

- Some codes are not learnable. This includes multi-frequency codes, some high frequency codes, and other unusual formats.

- All keys, with the exception of the Path/Component keys and LEARN, can be taught.

- Typically, the memory allows up to 24 keys to be taught.

- The Remote can learn only one code per key. It can not be taught a sequence of several keystrokes on one key.

- In general, we recommend that you do not teach the Record key. The Record key, almost always, requires a double key press (Rec+Pause or Rec+Play). The double key press will be lost when the Record key is involved in most learning operations. This lack of consistency does not always allow for proper function and is best avoided.

- The Source Remote and the AVM 20 Remote should be 1 to 2 inches apart during teaching mode, and the IR transmitters of the two Remotes should be aligned with each other.

- The placement of the IR transmitter in the Source Remote may make it difficult to correctly align the two Remotes.

- Source Remotes that contain a beam-focusing lens may require more than one attempt at successful alignment.

- The learning process should be conducted in an area where there is a low level of IR emission. High levels of natural light or fluorescent lighting could interfere with a learning event.

- The maximum carrier frequency is 135 kHz.

Teaching a Key:
To initiate the learning operation, follow these steps:

1. Point the Source Remote and AVM 20 Remote at each other (to be ready for step 5).

2. Press and hold **LEARN** until the LED flashes twice.

One long blink indicates low battery or faulty memory. The Remote will not go into learn mode if either of these conditions exist.

3. Press **9**, **7**, **5**, then the desired **Path/Component key**.

To place the command in Layer1, follow step 4a. To place the command in Layer2, follow step 4b:

4a. Press the **key to be taught**. Proceed to step 5.

4b. Press **LEARN** (don't hold), then press the **key to be taught**.

5. The LED flashes rapidly. Within 4 seconds, press and hold the **teaching key on the Source Remote** until the LED flashes twice. The LED will go out while it receives a signal from the Source Remote.

One long blink appearing during this step indicates a learning failure, which could mean:
- Bad Capture (try again).
- Memory Full (delete another command).
- Unlearnable Code.

6. Repeat steps 4a or 4b and 5 as often as desired (up to the maximum limit of memory or 24 keys).

7. Wait 10 seconds to exit the learning mode automatically.

Deleting a Learned Command from a Key:
To delete a learned command on one key, you can either overwrite it with a new code on the same key, or use the following delete sequence:

1. Press and hold **LEARN** until the LED flashes twice.

2. Press **9**, **7**, **6**, the **Path/Component key**, the **key to be deleted**, the **key to be deleted again**.

To erase all learned commands in all Path/Component keys, press and hold **LEARN** until the LED flashes twice and then press **9**, **8**, **0**.

6.9 CONTROLLING THE AVM 20 WITH AFTERMARKET REMOTES

Some keys on the AVM 20 Remote, such as **VOL+**, **VOL−**, and **SETUP** (SUB/LFE), have **press and hold** commands as well as regular **press and release** commands. It may be necessary to program your aftermarket remote to **loop** or **repeat** a command to turn it into a 'press and hold' command. The methods of doing this vary with model – contact the remote control manufacturer for more information.

Direct Mode and tuner bank access: If you're using a macro-capable aftermarket remote, individual surround Modes and tuner banks can be accessed directly by way of 3-key sequences – see Appendix A.

7. SETUP MENU

The **Setup** is where all the user definable operating characteristics, calibrations, and configurations are entered. For optimum performance and enjoyment, it is crucial that your AVM 20 be properly set up.

For ease of viewing, use of the On-Screen display is strongly recommended whether accessing the Setup from the Remote Control or Front Panel. The On-Screen and Front Panel displays are synchronized with one another. Illustrations throughout this section show the On-Screen display menus. The Front Panel display of the AVM 20 shows similar information.

> **If you are using Component Video,** do the following to see the Setup Menus on the On-Screen Display:
> * Connect the AVM 20 Composite or S-Video output to your TV's Composite or S-Video input.
> * Temporarily change your monitor's input to Composite or S-Video by using TV remote control.

7.1 HOW TO ENTER THE SETUP MENU

> **Note:** The Setup Menu can be accessed from the **MAIN** or **ZONE2** Path. When in the ZONE2 Path, the Setup Menu will not show on the Main TV and vice versa – press the appropriate path first and then enter the Setup Menu.

* **Front Panel:** Press and hold **STATUS (Setup)** for 3 seconds.
* **Remote Control:** Press and hold **SUB/LFE (SETUP)** for 3 seconds.

7.2 HOW TO NAVIGATE IN THE SETUP MENU

* Use the ▲ ▼ buttons to scroll through menus.
* Press **SELECT** to choose a menu item.
* Use the ▲ ▼ and ◄ ► buttons to change settings.
* Press **BACK** to return to previous item or menu.
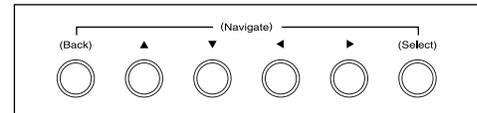
Example: Enter the distance from your speakers to the listening position (section 7.4.3):
* Enter the Setup (section 7.1).
* Press the ▼ button until you reach '3. LISTENER POSITION'.
* Press **SELECT**. This will bring up the '3. LISTENER POSITION' sub-menu.
* Use the ▲ ▼ buttons to scroll to the speaker(s) that you want to change.
* Use the ◄ ► buttons to change the distance.
* Press **BACK** to leave the submenu.

> **Note:** The last change made to a Setup item will always be the 'entered' result. If you make a change and then decide that you don't want the new setting, you must go back to that item and change it to the original setting.

7.3 HOW TO EXIT THE SETUP MENU

* Press **BACK** as many times as necessary. Each time BACK is pressed, the Setup returns to the previous item or menu, until Setup is exited completely and the regular display returns.

> **Note:** The Setup will exit automatically if not used for 5 minutes to prevent burning of a permanent On-Screen display image in the projector/monitor.

7.4   SETTING UP THE AVM 20

After entering the Setup Menu as described in section 7.1, your On-Screen display will show the menu below. Only 8 menu items can be displayed at one time – use the ▲ ▼ buttons to scroll up or down and view the remaining ones. To go to a submenu, highlight a menu item in red and then press **SELECT**.

```
ANTHEM AVM 20 SETUP MENU
1.    SET TIME / TIMERS
2.    SPEAKER CONFIGURATION
3.    LISTENER POSITION
4.    SPEAKER LVL CALIBRATION
5.    SOURCE SETUP / PRESETS
6.    ADJUST INPUT LEVELS
7.    A-D / AUDIO-OUT FORMAT
8.    VOLUMES / RENAME PATHS
9.    TRIGGERS / IR / RS-232
10.   DISPLAYS / TIMEOUT
11.   SAVE / RESTORE SETTINGS
12.   LOCKOUT / PASSWORDS
```
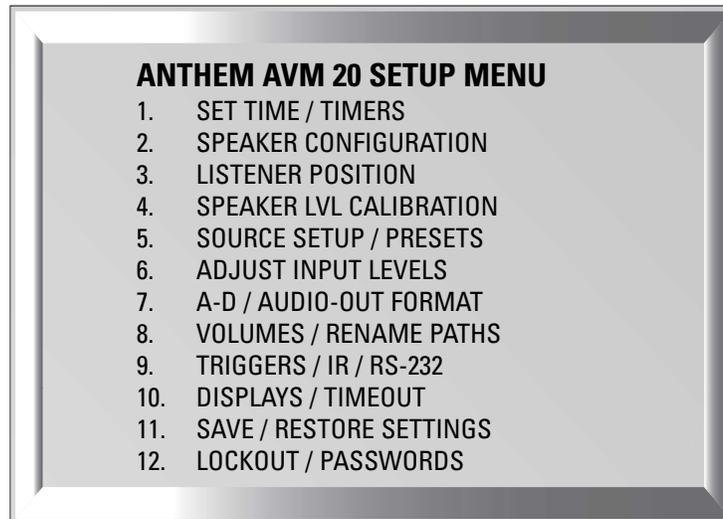
7.4.1   SET TIME / TIMERS

The time and day, plus 6 different timers are set in this menu. The timers in the AVM 20 are similar to an alarm clock, but allow two different timer settings for each of MAIN, ZONE2, and ZONE3.

```
1.     SET TIME / TIMERS
a.    CURRENT TIME :  12:00 AM
b.     CURRENT DAY :  Sunday
c.     TIME FORMAT :  12 Hr
d.       ALL TIMERS :  Disabled
e.    SET MAIN TIMERS
f.    SET ZONE2 TIMERS
g.    SET ZONE3 TIMERS
```
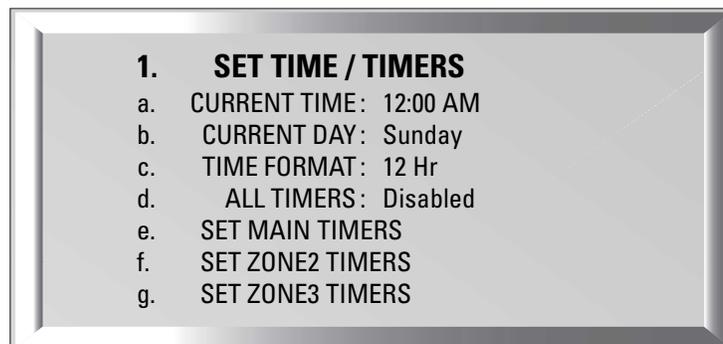
Procedure for setting Current Time and Day:
- Enter the Setup (section 7.1). Go to '1. SET TIMERS/TIME' and press **SELECT**.
- Press the ▼ button until you reach 'c. TIME FORMAT: 12 Hr'.
- Use the ◄ ► buttons and choose '12 Hr' or '24 Hr'.
- Press the ▼ button to go to 'a. CURRENT TIME: 12:00 AM'.
- Press **SELECT**. '12' will be highlighted in red.
- Use the Master Control Knob or the ▲ ▼ buttons to set the current hour.
- Press the ► button. '00' minutes will be highlighted.
- Use the Master Control Knob or the ▲ ▼ buttons to set current minutes.
- Press **BACK** to return to the menu line.
- Press the ▼ button to go to 'b. CURRENT DAY: Sunday'.
- Use the ◄ ► buttons to set the current day.

All Timers:
This allows you to simultaneously 'Enable' or 'Disable' all Timers for MAIN, ZONE2, and ZONE3.

Highlighting 'e. SET MAIN TIMERS' in menu 1 and then pressing **SELECT** displays this menu:

```
1e.         SET MAIN TIMERS
- - - - - - - - TIMER 1 :   Off  - - - - - - - -
a.        T1 WEEKDAY ON :    8:00 AM
b.        T1 WEEKDAY OFF :  11:00 PM
c.        T1 WEEKEND ON :  10:00 AM
d.        T1 WEEKEND OFF :  11:00 PM
e.        SELECT SOURCE :  Last Stn
f.     AUTO-ON VOLUME :  –35.0 dB
- - - - - - - - TIMER 2 :   Off  - - - - - - - -
a.        T2 WEEKDAY ON :    8:00 AM
b.        T2 WEEKDAY OFF :  11:00 PM
c.        T2 WEEKEND ON :  10:00 AM
d.        T2 WEEKEND OFF :  11:00 PM
e.        SELECT SOURCE :  Last Stn
f.     AUTO-ON VOLUME :  –35.0 dB
```
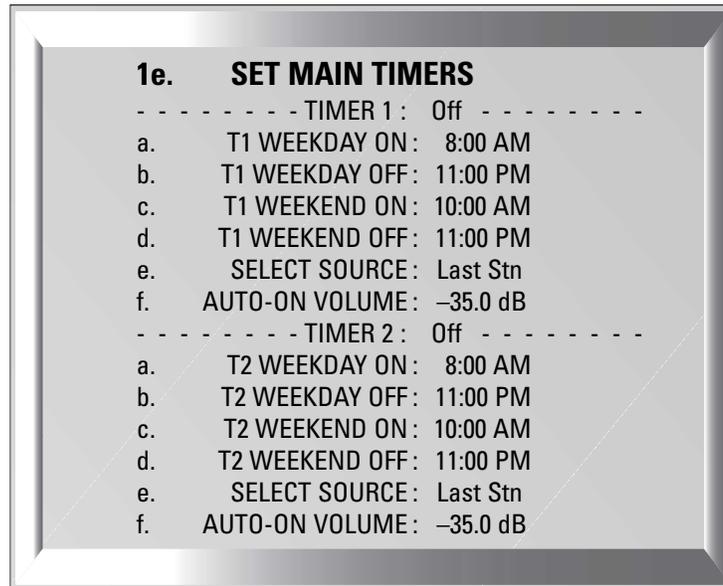
Timer Options:

There are two Timers for Main and each Zone to allow greater flexibility. You can set individual week and weekend auto-on/off times twice – once for the morning and again for the evening, for example.

Using the ◀ ▶ buttons, TIMER 1 and TIMER 2 choices are:

- '**Off**' – Timer is disabled and will not come on at any time or day.
- '**Week**' – Timer will operate for Monday to Friday only.
- '**Wkend**' – Timer will operate for Saturday and Sunday only.
- '**Wk+Wkend**' – Timer will operate for every day of the week.

On and Off Times:

Individual auto-on/off times are entered for:

T1 or T2 WEEKDAY ON: Sets the Monday to Friday turn-on time.

T1 or T2 WEEKDAY OFF: Sets the Monday to Friday turn-off time.

T1 or T2 WEEKEND ON: Sets the Saturday and Sunday turn-on time.

T1 or T2 WEEKEND OFF: Sets the Saturday and Sunday turn-off time.

Timers may also be set to only turn on or only turn off (see Example 2) – this way, the AVM 20 can be set to turn on automatically, and it won't turn off until you turn it off manually when you're done for the day.

> **Note:** If the AVM 20 is already on, 'Timer On' settings are ignored to ensure that Source and Volume are not changed when you are already listening to a program.

Select Source:

This allows you to select the Source that will play when a Path is turned on by its Timer1 or Timer2 – select any Source, any preset FM•AM station, or Last Stn (the tuner setting when AVM 20 was last turned off). Be sure that your selected **source component** and **power amplifier** are turned on, or will be on at the Timer turn-on time. If your components are equipped with trigger inputs, you can set an AVM 20 trigger to turn them on automatically (see section 7.4.9).

Auto-On Volume:

Sets the Volume that will play when Timer1 or Timer2 turns the power on for its Path. The volume starts at the minimum volume for that Path and slowly increases until the 'Auto-On' setting is reached.

Example 1: Select a Source for the ZONE2 Timer:

- Enter the Setup (section 7.1). Go to '1. SET TIME/TIMERS' and press **SELECT**.

- Press the ▾ button until you reach 'f. SET ZONE2 TIMERS'.

- Press **SELECT**. The '1f. SET ZONE2 TIMERS' submenu will appear.

- Press the ▾ button until you reach 'e. SELECT SOURCE'.

- Use the ◀ ▶ buttons to change to desired Source.

- Press **BACK** to leave this submenu and return to the SET TIME/TIMERS menu.

If you selected 'Last Stn' as your Timer turn-on Source, you can leave it set to the last station you were listening to, or choose one of your preset stations. To have the Timer turn on to a Preset Station, do the following from the 'e. SELECT SOURCE' menu line (above):

- Use the ◀ ▶ buttons to change to 'Last Stn'.

- Press **SELECT** to highlight 'Last Stn'.

- Use the ▲ ▾ buttons to change to the desired FM•AM Preset. These will scroll from 'AM 1-1' to 'AM 1-6' to 'FM1-1' through to 'FM3-6' and back to 'Last Stn'.

- Press **BACK** to leave this submenu.

Note: The Timer submenu setup procedure is the same for MAIN, ZONE2, and ZONE3.

Example 2: Change ZONE2, TIMER2 to come on Weekdays at 7:35 AM.

- Enter the Setup (section 7.1). Go to '1. SET TIME/TIMERS' and press **SELECT**.

- Press the ▾ button until you reach 'f. SET ZONE2 TIMERS'.

- Press **SELECT**. The '1f. SET ZONE2 TIMERS' submenu will appear.

- Press the ▾ button to reach 'TIMER 2: Off'.

- Use the ◀ ▶ buttons to change to 'Week'.

- Press the ▾ button until you reach 'a. T2 WEEKDAY ON: 8:00 AM'.

- Press **SELECT**. The hour is now in red, use the Master Control Knob or the ▲ ▾ buttons to set the hour to '7' AM. (Continuing through '12' will advance the AM/PM settings.)

- Press the ▶ button. '00' minutes will be highlighted.

- Use the Master Control Knob or the ▲ ▾ buttons to set the minutes to '35'.

- Press **BACK** to leave this submenu and return to SET TIME/TIMERS menu.

Note: When scrolling between '11 PM' and '12 AM' settings, the display shows '--:--'. Timers set in the '--:--' position will be skipped. Thus, to set the Timer to only turn on, set the Off time to '--:--'. To set the Timer to only turn off, set the On time to '--:--'.

7.4.2 SPEAKER CONFIGURATION

The Speaker Configuration Setup allows you to enter information about how many speakers you have in your system, and their relative size and type. Here you will also set up the bass management. Entering information about the size of your speakers will enable the AVM 20 to control bass information so it is not lost or distorted by smaller speakers that are unable to reproduce large amounts of bass.

```
        2.    SPEAKER CONFIGURATION
    a.   CINEMA SPKR CONFIGURATION
    b.    MUSIC SPKR CONFIGURATION
    c.     SURROUND TYPE :  Dipole
    d.     REAR QTY / TYPE :  2 Dipole
    e.        CENTER EQ :  No
    f.        TV SIZE FOR EQ :  30-42 in
    g.   ROOM RESONANCE FILTER
    h.   SET BASS PEAK LEVEL
```
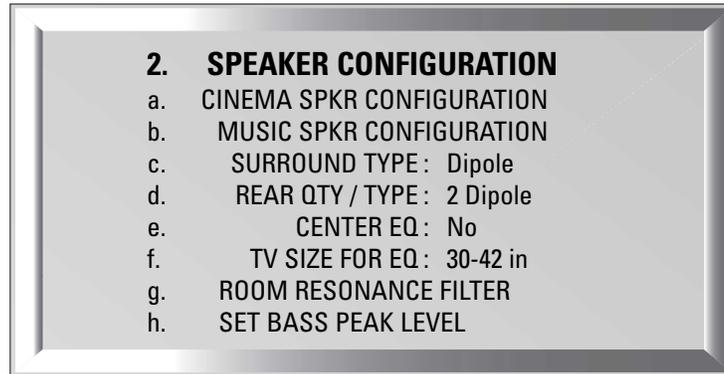
Cinema and Music Configurations:
The AVM 20 allows you to set two separate bass management configurations – **Music** can be tailored for music (and movies that do not contain a Low Frequency Effects '.1' track), and **Cinema** for source material that contains LFE, including all 5.1/6.1 channel movie and music sources. These configurations can be assigned to each Source.

Using the Music configuration is optional. Once you enter menu 2b. MUSIC SPKR CONFIGURATION, it asks whether or not you want to use the same settings as the Cinema configuration – 'Yes' is the factory default.

Setting up a configuration is described later in this section. Assigning a configuration to a Source or enabling automatic activation according to presence/absence of LFE is explained in section 7.4.5.

Surround and Rear Speaker Quantity and Type:
Surround speakers fall under two radiation pattern categories: Direct and Dipole. No delay is necessary in channels using dipole speakers – the sound is already delayed through room reflections. When dipoles are selected as the SURROUND TYPE and/or REAR TYPE, their distance will automatically equal the greatest distance in menu 3. LISTENER POSITION (see section 7.4.3). If you are using one Rear speaker, either Rear output connection can be used – Rear-L and Rear-R produce the same signal when d. REAR QTY/TYPE is set to one speaker. If you are not using the Rear channels, simply ignore the d. REAR QTY/TYPE setting.

Center EQ:
When a center speaker is installed on top of a TV, in a wall unit, or in a bookshelf, its frequency response can be affected, and speech may not sound as clear. With CENTER EQ set to 'Yes', the frequency response of the center channel output will be slightly altered to compensate, thereby restoring clarity.

TV Size For EQ :
This is used to determine the magnitude of the CENTER EQ change. Since room/TV/furniture acoustics vary, you may wish to experiment to determine which setting is actually the best for you. Listen to the center channel dialog of 3 or 4 different DVD soundtracks to determine which setting sounds the clearest.

- Select the TV size category that is one higher than what you are using, and then listen. The size categories are: 18"- 30" / 30"- 42" / 42"- 54" / 54"- 66" / 66"- 78".

- Leave the size setting in the category that provides the clearest dialogue, regardless of whether or not the size actually matches your TV. In some situations, leaving the Center EQ off completely may sound better. Let your ears be the final judge!

Highlighting 'a. CINEMA SPKR CONFIGURATION' in menu 2 and then pressing **SELECT** displays this menu:

```
2a.  CINEMA SPKR CONFIGURATION
a.          L/R FRONTS :  Small
b.             CENTER :  Small
c.      L/R SURROUNDS :  Small
d.        7.1-L/R REARS :  Small
e.          SUBWOOFER :  1 Sub
f.          XOVER FREQ :  80 THX
g.        ADV SETTINGS :  Off
h.    L/R FRONTS XOVER :   - - Hz
i.        CENTER XOVER :   - - Hz
j.     SURROUNDS XOVER :   - - Hz
k.       7.1 REARS XOVER :   - - Hz
l.        SUB / LFE XOVER :   - - Hz
m.    SUBWOOFER PHASE :   - - Deg
n.      SUBW'FR POLARITY :   - -
o.       BYPASS LFE XOVER :   - -
```
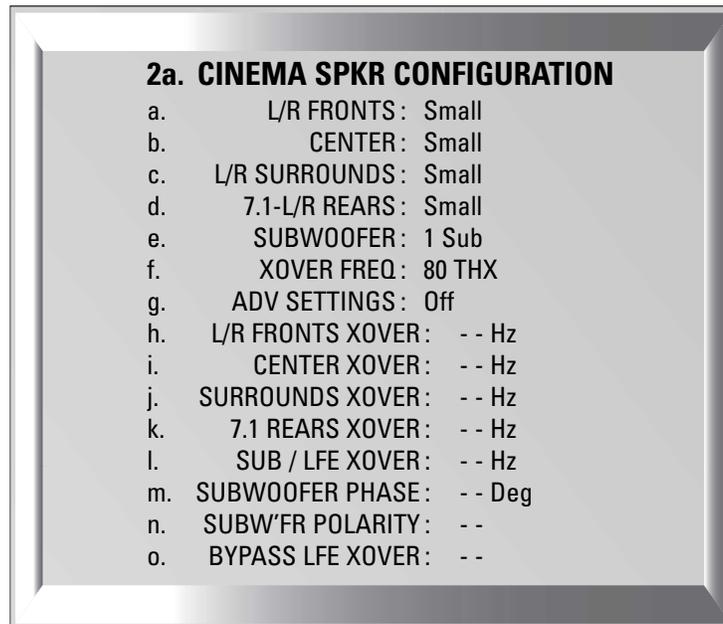
Small or Large:

Most speakers should be set to 'Small' and be used with a subwoofer, unless they use large drivers that can handle bass and LFE. Even then, physically large speakers may need a subwoofer for bass frequencies, particularly the bass of the '.1' LFE channel. All THX certified speakers are designed to be set to 'Small'. After highlighting a speaker or speaker group, use the ◀ ▶ buttons to select to 'Large', 'Small', or 'None'.

Subwoofer:

To find the best option for your room and system, first position all of your speakers and then select the option that gives the most solid sounding bass. The options are:

- **'None'** All bass is routed to 'Large' L/R Front and Surround speakers, including bass from speakers set to 'Small' plus bass from the '.1' LFE (Low Frequency Effects) channel.

- **'1 Sub'** Bass from channels set to 'Small' goes to the subwoofer along with bass from the '.1' LFE channel. This setting is preferred by THX.

- **'1 Super'** The subwoofer plays bass from all channels (Large and Small), together with LFE. This setting is recommended only for the Music configuration when using full-range speakers set to 'Large' together with the subwoofer.

- **'2 Sub'** or **'2 Super'** – Select when using both Subwoofer outputs with two subwoofers. This recalibrates the THX reference level of the test noise to compensate for the additional subwoofer.

'None' Setting for Center, Surrounds, or Rears:

- If CENTER is set to 'None', center channel information is redirected to the L/R Fronts (this is also known as a Phantom center channel).

- If SURROUNDS are set to 'None', L-Surround channel information is directed to the L-Front channel, and R-Surround channel information to the R-Front channel (except in Dolby Pro Logic mode).

- If REARS are set to 'None', Rear channel information of Surround EX and DTS-ES DVDs plays in the Surround channels – no information is lost in the absence of Rear speakers.

Note: If using 5.1 speakers (or less) in your system, the surround speakers must be connected using the SURROUND channels, and REARS must be set to 'None' to properly configure your system.

Crossover Frequency:

The crossover (Xover) divides the audio signal into two frequency bands, thereby restricting the amount of bass sent to any speaker set to 'Small', and preventing midrange and treble from going to the subwoofer.

Using the ◀ ▶ buttons, choose a frequency between 25 Hz - 160 Hz that approximates the low frequency capability of the speakers in your system. Doing so will provide the best blend between the subwoofer and the other speakers in your system. If you are using THX certified speakers, this should be set to 80 Hz.

> **Note:** LFE is directed to Front channels only when Subwoofer is set to 'No'. If set to 'Yes' or 'Super', the Cinema Configuration XOVER FREQ should not be set much lower than 80 Hz to prevent loss of LFE information. Advanced Settings provide additional options in this regard (see below).

Since bass response is most dependent on room acoustics, some experimentation with subwoofer placement and adjustment of XOVER FREQ is highly recommended for best results.

> **Note:** The subwoofer's built-in crossover is not required when the AVM 20's bass management is used – to bypass, set the subwoofer's crossover to the highest cut-off frequency.

Advanced Settings – Crossover Frequency:

Advanced Settings let you tailor Crossover Frequency settings more precisely. When 'ADV SETTINGS' is set to 'On', each speaker type can be set to a Crossover Frequency that best suits its specific low frequency characteristics. Even large speakers that can handle extended bass benefit because you can set the Crossover Frequency to a very low setting and prevent them from receiving signals that are better handled by a high performance subwoofer. Scrolling below '25 Hz' or above '160 Hz' brings the 'Off' setting, which bypasses the crossover and sends a full-range signal to the speaker.

If room acoustics cause cancellation in the crossover region, sound can be improved by overlapping the Subwoofer setting with the settings of other speakers, for instance setting L/R FRONTS XOVER to 70 Hz while setting SUB/LFE XOVER to 90 Hz. On the other hand, if there is a bass peak in the crossover region, you can spread the settings, such as setting L/R FRONTS XOVER to 100 Hz and SUBWOOFER XOVER to 80 Hz.

Advanced Settings – Subwoofer Phase and Polarity:

Room acoustics vary. If you have the flexibility, experiment with subwoofer placement to determine where it sounds best in your system, providing deep, tight, and well defined bass. Certain subwoofer positions, however, may cause bass frequency cancellation, meaning that when your front speakers and subwoofer are "out-of-phase", they work against each other, resulting in weak and sometimes dislocated sounding bass. This can be corrected by adjusting the Subwoofer Phase and Polarity settings in this submenu.

If your subwoofer has phase and/or polarity controls, set them to zero/normal before making any adjustments to the AVM 20's Subwoofer Phase and Polarity settings.

As a general guide, set Polarity to 'Normal' if the subwoofer is placed close to the front speakers, and to 'Inverted' if the subwoofer is located behind the listening area or toward the back of the room. With bass material playing, switch Polarity from 'Normal' to 'Inverted' as a quick check – leave it in the position where bass is louder and more solid sounding.

Subwoofer Phase allows you to take things a step further and fine tune the phase alignment of the subwoofer to your front speakers. Again, adjust Phase for the least amount of cancellation by listening for loudest and most solid bass. Alternatively, listen to the 'shhhh' noise created between FM radio stations, and adjust Phase until you find the most natural sounding transition between your main speakers and subwoofer.

Advanced Settings – Bypass LFE Crossover:

If you have set SUB/LFE XOVER to a much lower than normal frequency, a significant portion of the LFE signal can be lost. With BYPASS LFE XOVER set to 'Yes', the LFE signal goes to the subwoofer without going through the crossover to allow recovery of LFE information that would otherwise be lost. This applies to the 6-Ch input's SUB input as well, since it is, in effect, the LFE channel.

Highlighting 'g. ROOM RESONANCE FILTER' in menu 2 and then pressing **SELECT** displays this menu:

ROOM RESONANCE

AVM 20 FILTER

RESULT

```
2g.   ROOM RESONANCE FILTER
a.              TEST TONE :   Off
b.        TEST TONE LEVEL :  +0.0 dB
c.         TEST TONE FREQ :   21 Hz
d.            APPLY FILTER :   No
e.       FLTR CENTER FREQ :   60 Hz
f.            FILTER DEPTH :    1 dB
g.            FILTER WIDTH :   20 Hz
h.         THX ULTRA2 SUB :   No
i.    THX BG COMPENSATION :   NA
```
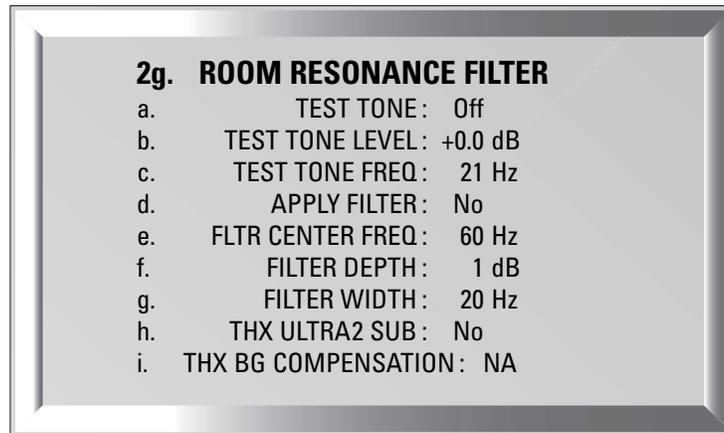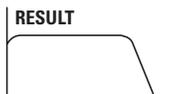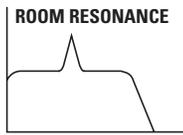
Rooms often have a single prominent resonance peak which can make bass sound boomy, even with the finest subwoofer. The AVM 20 has a proprietary set of low frequency test tones that allow you to find and easily remove that resonance peak.

The Room Resonance Filter is a notch filter – it is not designed to boost weaker bass frequencies. While running the test tones, if you discover that instead of a prominent peak, there is a prominent dip in response, the best way to fill it is through a subtle repositioning of the subwoofer and/or listening position. Using electronics alone to accomplish this is often met with frustration, for example, a 10 dB boost would require the amplifier to work ten times harder, as well as speakers that can handle that much more power.

Test Tone and Test Tone Level:
Test tones sweep from 18 Hz up to the XOVER FREQ (or the SUB/LFE XOVER frequency) that you have set in menu 2a. or 2b., whichever is higher. You can vary the level to obtain a comfortable playback volume.

Center Frequency

Filter Center Frequency:
The frequency that is reduced the most when the filter is applied is called the Center Frequency. Set this to the frequency that sounds the loudest or most boomy when the built-in test tones are played. If you're using a sound pressure level meter, set it to 'Flat' or 'C-weighting'.
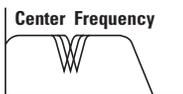
Filter Depth

Filter Depth:
This is the amount of center frequency 'cut', or reduction in volume, in the subwoofer channel. Frequencies just above and just below the center frequency are also reduced, but not as much. Range is from 1 to 20 dB.
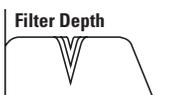
Filter Width

Filter Width:
This adjustment varies the range and sharpness of the filter. For example, if Filter Width is set to 3 Hz, the Room Resonance Filter cuts a very narrow range at the filter center frequency. If Filter Width is changed to 18 Hz, a broader range is reduced.
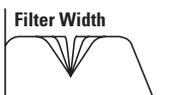
> **Note:** Changing Center Frequency and Depth settings affects the available range of Width and causes it to automatically decrease if required.

THX Boundary Gain Compensation:
If, for practical or aesthetic reasons, your listening room layout results in most of the listeners being close to the rear wall, bass may be reinforced by the wall so much that the overall bass sounds boomy. The AVM 20 provides a Boundary Gain Compensation (BGC) feature to improve bass balance under these conditions. With a THX Ultra2 certified subwoofer, or a subwoofer that extends down to 20 Hz, BGC can be enabled by setting THX Ultra2 Subwoofer to 'Yes' and then BG Compensation to 'On'.

Procedure for adjusting Room Resonance Filter:

- Enter the Setup (section 7.1). Go to '2. SPEAKER CONFIGURATION' and press **SELECT**.

- Press the ▼ button until you reach '2g. ROOM RESONANCE FILTER' and press **SELECT**.

- Use the ◄ ► buttons to set TEST TONE to 'Auto'. Press **SELECT** to start automatic sweeping of the test tones. Alternatively, you can set TEST TONE to 'Manual' – to vary the frequency, press the ▲ ▼ buttons to reach 'c. TEST TONE FREQ', then use the ◄ ► buttons to change frequency.

- Some subwoofers are not able to accurately reproduce frequencies below 30 Hz or so, especially at higher levels. In addition, it can be quite difficult to hear these frequencies. If playing them doesn't 'sound right', do not continue to play them.

- Line 'c. TEST TONE FREQ' changes to show the frequency being played during automatic sweep. Listen for (or measure) the frequency that sounds too loud compared to the other frequencies.

- Press the ▼ button until you reach 'e. FLTR CENTER FREQ' and select the frequency that is closest to the test tone frequency that was found to be the loudest.

- Press the ▲ button until you reach 'd. APPLY FILTER' and set to 'Yes'.

- Press the ▲ ▼ buttons to go to 'f. FILTER DEPTH' and 'g. FILTER WIDTH'. Adjust both to achieve the flattest response across the range of test tones.

- Press **BACK** to stop the test tones and leave this submenu.

Moving to the next menu, highlight 'h. BASS PEAK LEVEL' in menu 2 and press **SELECT** to display:

```
2h.      BASS PEAK LEVEL
        See OPERATING MANUAL for
           detailed instructions
    a.      CURRENT LEVEL :   +0.0 dB
    b.      ADJUST LEVEL :  −50.0 dB
    c.   SET NEW PEAK LEVEL :  No
```
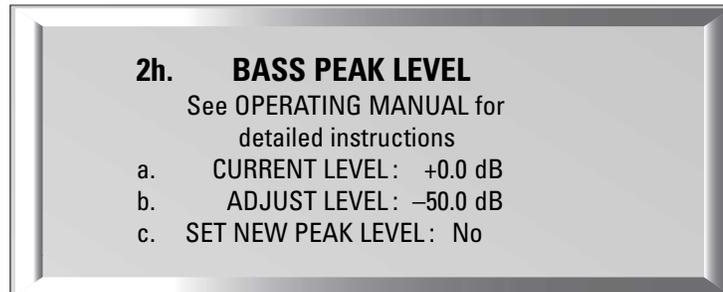
The loudest part of movie soundtracks is usually the bass that comes from the LFE track. The Bass Peak Level Manager 'looks ahead' at the bass signal, and reduces the chance that your speakers will overload by tailoring bass output to match their capabilities. If your subwoofer already has its own built-in limiter, it may be best to leave Current Level at 0 dB. **BPLM is disabled if 'THX Ultra2 Subwoofer' is set to 'Yes' in menu 2g.**

Procedure for setting Bass Peak Level:

- Enter the Setup (section 7.1). Go to '2. SPEAKER CONFIGURATION' and press **SELECT**.

- Press the ▼ button until you reach '2h. BASS PEAK LEVEL' and press **SELECT**.

- Press the ▼ button until you reach 'b. ADJUST LEVEL −50.0 dB'.

- A test signal should be audible. Use the ◄ ► buttons to turn up the level of the test signal until distortion from the subwoofer (or 'Large' L/R Fronts if Subwoofer is set to 'No') begins to appear, then lower the level of the test signal until the distortion just disappears. At this point the sound may be surprisingly loud even though it's not distorted – make sure that you do not stop at a setting that is too low, or very little bass may be heard during movie or music playback.

- Press the ▼ button to go to 'c. SET NEW PEAK LEVEL'.

- Use the ◄ ► buttons to change to 'Yes'.

- Press **SELECT** and 'a. CURRENT LEVEL' will change to the new setting. The AVM 20 will not allow bass output to exceed this new setting.

- Press **BACK** to leave the submenu.

7.4.3 LISTENER POSITION

The Listener Position menu lets you enter the distance between each speaker and the listening area. Ideally, speakers should be placed at an equal distance so that their sound arrives at the listening area at the same time, but since this is rarely practical, the AVM 20 can delay the sound coming from speakers that are closer to the listener. This way, sound reaches the listening area at the same time from all speakers, and proper imaging can be achieved.

The speaker with the greatest distance setting will have no delay; speakers with shorter distance settings will be delayed according to their setting.

```
3.     LISTENER POSITION
a.  UNITS OF MEASURE :  ft
b.          LEFT FRONT :  12.0 ft
c.             CENTER :  12.0 ft
d.        RIGHT FRONT :  12.0 ft
e.    RIGHT SURROUND :   8.0 ft
f.      7.1-RIGHT REAR :   6.0 ft
g.       7.1-LEFT REAR :   6.0 ft
h.     LEFT SURROUND :   8.0 ft
i.          SUBWOOFER :  12.0 ft
j.   L-REAR TO R-REAR :  12.0 ft
```
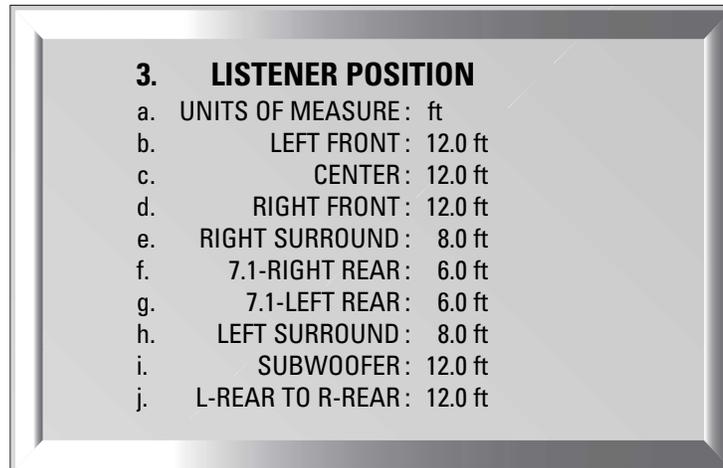
Units of Measure and Distance Adjustment:
Choose the units you want to use (feet/metres), then enter the distance between your primary listening area and each speaker. Range is 0-99 ft in 0.5 ft increments or 0-99 m in 0.2 m increments.

> **Note:** Speakers set to 'Dipole' in menu 2. SPEAKER CONFIGURATION will automatically have their distance set to equal the greatest distance of any other speaker (see section 7.4.2).

L-Rear to R-Rear:
ASA is a proprietary THX technology which processes the sound fed to the two surround and two rear speakers to provide an optimal surround sound experience. Choose the setting that most closely corresponds to the spacing between your Rear speakers.

Example: Set Right Front speaker distance to 9.5 feet.
- Enter the Setup (section 7.1). Go to '3. LISTENER POSITION' and press **SELECT**.
- Press the ⏷ button until you reach 'd. RIGHT FRONT: 12.0 ft'.
- Use the ◄ ► buttons to change to '9.5 ft'.
- When finished, press ▲ ▼ to go to another menu item, or...
- Press **BACK** to leave the submenu and return to the main menu.

7.4.4 SPEAKER LEVEL CALIBRATION

Speaker Level Calibration allows you to match the relative output level of each speaker at the listening position, using internal test noises.

> **Note:** The FRONTS, CENTER, SURROUNDS, REARS, SUB, and BALANCE buttons on the Front Panel and Remote Control do <u>not</u> affect this menu – they allow 'on-the-fly' adjustment of individual program material as may be required (sections 5.6 and 5.7).

```
4.  SPEAKER LVL CALIBRATION
a.        TEST SEQUENCE :   Manual
b.      NOISE REF LEVEL :   +0.0 dB
c.           LEFT FRONT :   +0.0 dB
d.               CENTER :   +0.0 dB
e.          RIGHT FRONT :   +0.0 dB
f.       RIGHT SURROUND :   +0.0 dB
g.           RIGHT REAR :   +0.0 dB
h.            LEFT REAR :   +0.0 dB
i.         LEFT SURROUND :   +0.0 dB
j.     CINEMA CONFG SUB :   +0.0 dB
k.      MUSIC CONFG SUB :   +0.0 dB*
```
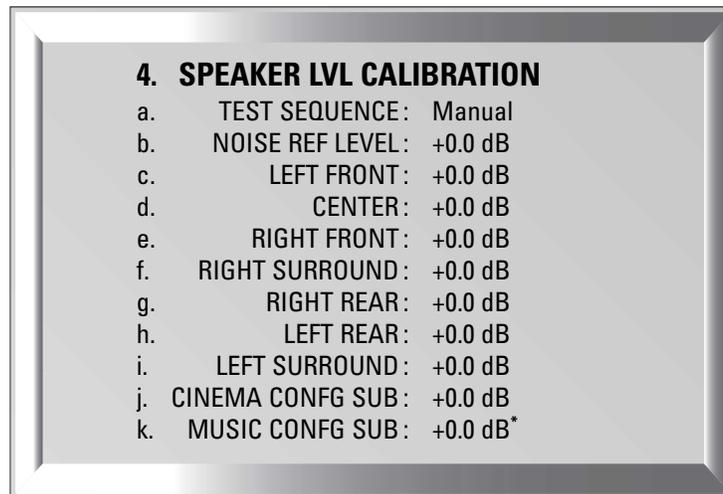
* Item k. is displayed only when 'a. SAME AS CINEMA CONFIG' is set to 'No' in menu 2b.

Test Sequence:

Test noise can be set to travel from speaker to speaker manually using ▲ ▼ buttons, or automatically in two second intervals by setting TEST SEQUENCE to 'Auto' using the ◂ ▸ buttons and then pressing **SELECT**.

> **Note:** If the previously selected Source is Anlg-Dir, the AVM 20 switches to FM•AM, which is always Anlg-DSP, for the duration of the test noise. ('Anlg-Dir' bypasses the test noise generator.)

We strongly recommend the use of an SPL meter. The proper meter setting is 'C-weighted', but 'Flat' can also be used. Do not use 'A-' or 'B-weighting'. Set the meter to read 'Slow' or 'RMS' if available. Point the meter upwards, holding it at the listening position an arm's length away from your body to prevent reflections.

Noise Reference Level:

This is the 'master volume' for the test noise. Its setting depends on your amplifier's and speakers' sensitivity and can only be adjusted accurately when using an SPL meter as per above. Using the ◂ ▸ buttons, adjust NOISE REF LEVEL so the SPL meter reads 75 dB.

Level Calibration:

Balances speaker levels to one another. Since this setup calibrates all speaker levels for your listening area, use the Remote Control and sit in the primary listening position when calibrating speaker levels. Any speaker set to 'None' in the Speaker Configuration menu will be skipped (see section 7.4.2). Once you have set the reference level, adjust the level of each speaker using the ◂ ▸ buttons so the SPL meter reads 75 dB. As a matter of personal preference, you can set the subwoofer level calibration by ear if more bass is desired.

If Subwoofer is set to 'Super' in menu 2a. or 2b., do not rely on an SPL meter to set subwoofer level, because Speaker Level Calibration cannot take into account the added bass the subwoofer receives from speakers set to 'Large' which results in more bass during playback than the calibrated level. Therefore, if using 'Super', set subwoofer calibration level by ear while playing various types of source material.

Procedure for Manual Test Sequence:

- Enter the Setup (section 7.1). Go to '4. SPEAKER LVL CALIBRATION' and press **SELECT**.

- Press the ▲ ▼ buttons to go from speaker to speaker.

- As each speaker plays, use the ◄ ► buttons to adjust its loudness relative to other speakers.

- Press **BACK** to stop the test tone.

Procedure for Auto Test Sequence:

- Enter the Setup (section 7.1). Go to '4. SPEAKER LVL CALIBRATION' and press **SELECT**.

- Use the ◄ ► buttons to set TEST SEQUENCE to 'Auto'.

- Press **SELECT** to start the automatic sequence.

- As each speaker plays, use the ◄ ► buttons to adjust its loudness relative to other speakers. Once set, the sequence will automatically advance to the next speaker for adjustment. It will then continue to cycle speaker by speaker to allow you to fine tune all levels.

- Press **BACK** to stop the test tone.

7.4.5 SOURCE SETUP / PRESETS

For each Source, you can change the name and, where applicable, assign digital audio and component video input, assign speaker configuration, adjust equalization, and set audio group delay. You can also pre-select surround modes that take effect for each Source when the AVM 20 is turned on, or a Source is selected. This is particularly useful when you have changed Mode settings for a particular program. When another member of your family uses the AVM 20, presets are recalled, ensuring trouble-free operation.

```
5.    SOURCE SETUP / PRESETS
a.    CD
b.    2-Ch
c.    6-Ch
d.    TAPE
e.    FM/AM
f.    DVD
g.    TV
h.    SAT
i.    VCR
j.    AUX
```
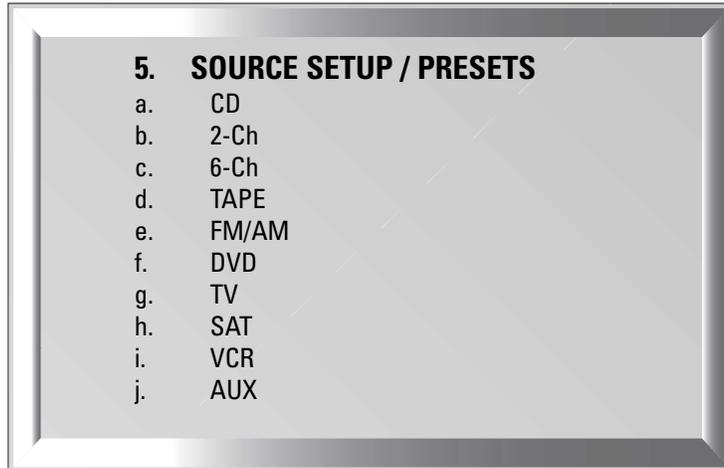
For the following example, highlighting 'f. DVD' in menu 5 and then pressing **SELECT** displays this menu:

```
5f.    DVD SETUP / PRESETS
a.    RENAME :  DVD
b.    AUDIO IN :  Dig RCA DVD
c.    EQ :  LF  +0.0 dB    HF  +0.0 dB
d.    SPEAKER CONFIG :  Cinema
e.    COMPONENT VIDEO :  Comp1
f.    AUDIO GROUP DELAY :   0.0 ms
- - - - - - -  MODE PRESETS  - - - - - - -
g.     2-Ch :  AL-Cin
h.     DD-2.0 :  Same as 2-Ch
i.     DD-5.1 :  +Last THX Used
j.     DTS-5.1 :  +Last THX Used
k.     DD-EX :  Auto
l.     DTS-ES :  Auto
```
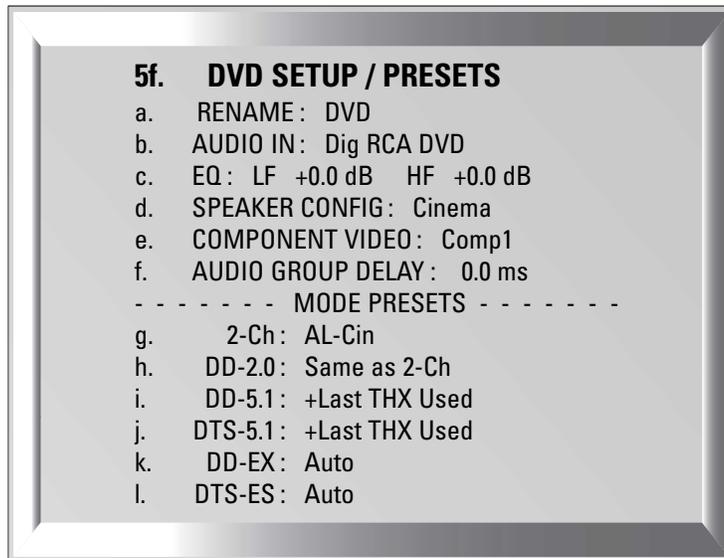
Rename Source:
The factory assigned Source names that appear on the Front Panel Display and the On-Screen Display can be changed to another name, up to six characters long. The following characters are available:

A, **B**, **C**….**Z**, **a**, **b**, **c**….**z**, blank, dash (–), period (.), slash (/), **0**, **1**, **2**….**9**.

After highlighting the RENAME line, press **SELECT** and use the ◄► buttons to move from character to character, then use the ▲ ▼ buttons or rotate the Master Control Knob to change the character.

Note: It is also possible to rename 'ZONE2', 'ZONE3', and 'RECORD' – see section 7.4.8.

Audio In:
There are four input formats to choose from – Digital, Analog-DSP, Analog-Direct, or Auto. After highlighting 'AUDIO IN' use the ◂ ▸ buttons to select an input format.

Selections apply to the MAIN Path only:

- **Dig** (Digital – not applicable to 6-Ch S/E, 2-Ch BAL, or FM•AM)**:** Use this setting for any source component that has a digital output, especially the DVD player – Dolby Digital and DTS are transmitted only through the digital connection.

- **Anlg-DSP** (Analog with Digital Signal Processing)**:** If you want your subwoofer to play from an analog L/R input, use this setting. Analog input is converted to digital through the AVM 20's high-end A/D converters to enable bass management, time alignment, Mode, Bass/Treble, Audio Group Delay, and THX. All of these are also available for the **6-Ch S/E** input, since it can also be set to Anlg-DSP. With the bass management and time alignment that this provides, the resulting sound quality from DVD-Audio or multichannel SACD is far better than setting the 6-Ch input to Anlg-Dir.

- **Anlg-Dir** (Analog-Direct – not applicable to FM•AM)**:** A/D conversion and Digital Signal Processing are bypassed, only leaving Volume, Surround Mode Level, Balance, and Mute functional. Other than the subwoofer channel of the 6-Ch S/E input, there is no subwoofer output in Anlg-Dir.

- **Auto:** The AVM 20 automatically switches between Digital and Analog-DSP. When it senses a digital bitstream, the Digital input is used. At all other times, it switches to the Analog L/R input. This feature is especially useful with a digital cable box since some channels are broadcast digitally while others are analog – the AVM 20 switches automatically while you change channels.

> Once you have set a Source to 'Digital' or 'Auto', press **SELECT** and then use the ▲ ▼ buttons choose the connector that your source component is connected to – any RCA input, TOS1, TOS2, TOS3, or XLR can be used. All digital input connectors can be assigned to multiple Sources – this allows you to have two unique Setup/Preset settings for the same DVD player, one for DVDs using the DVD Source, and the other for CD music using the CD Source.

EQ:
For Sources set to Digital or Anlg-DSP, you can preset low and high frequency levels. This is useful for source components that have frequency irregularities. After highlighting the EQ line, press **SELECT** and use the ◂ ▸ buttons to select LF (low frequency) or HF (high frequency), then use the ▲ ▼ buttons to adjust. In the FM/AM Setup/Presets menu, FM and AM can be adjusted separately.

> **Note:** The BASS and TREBLE buttons on Front Panel and Remote Control do <u>not</u> affect this menu, but allow 'on-the-fly' adjustment of program material as may be required (see section 5.7).

Speaker Configuration:
Choose between Cinema (menu 2a.) or Music (menu 2b.) configuration – see section 7.4.2.

A third very unique choice is also available: Auto-LFE. When selected, the AVM 20 automatically uses the Cinema configuration if there is LFE in the source material, and changes to the Music configuration at all other times. Highly recommended when using the same player for DVDs and CDs, and separate Cinema and Music configurations. Dolby Pro Logic falls under Music configuration since it does not use an LFE track.

Component Video:
Assign which Component video input (or 'None') is used when the Source is selected, for example, if your DVD player is connected to Component1, select 'Comp1' in the DVD Setup/Presets menu. All Component inputs can be assigned to multiple sources.

Audio Group Delay:
Using line doublers, quadruplers, or scalers causes the video to be delayed, which means that you will hear sound slightly ahead of seeing the video picture. This can also occur with HDTV and satellite broadcasts. To compensate for this video delay, Audio Group Delay can delay sound of all channels simultaneously by up to 85 milliseconds – please check the owner's manual for your doubler, quadrupler, or scaler for recommended delay settings. If you do not know the recommended delay settings, you can adjust Audio Group Delay outside of the Setup Menu – this allows you to see the picture as you make adjustments (see section 6.7).

Mode Presets:
You can pre-select the Mode and THX preference that will be applied when a Source is selected, or MAIN power is turned on. There are separate settings for each type of program material.

To disable a preset, set it to 'Last Used'. Presets are not available for Sources set to Anlg-Dir.

For complete descriptions of surround modes and when to use them, refer to section 5.8.

Program	Preset Selections
• **2-Ch**	For stereo source material, select from any Mode described in section 5.8.3, or Last Used. In addition, Dolby Pro Logic, Pro Logic II-Movie, and Neo:6 Cinema can be preset either with or without THX Cinema.
	The following presets apply to Digital inputs only:
• **DD-2.0**	For two-channel Dolby Digital material, you can use the same selection as for stereo source material, Pro Logic II-Movie: Auto (see section 5.8.2) with or without THX Cinema, or Last Used.
• **DD-5.1**	Presets a THX mode for Dolby Digital 5.1 material: THX Cinema, THX Ultra2 Cinema, THX MusicMode, THX Surround EX, Off, or Last Used (see section 5.8.6).
• **DTS-5.1**	Presets a THX mode for DTS-5.1 material. THX Cinema, THX Ultra2 Cinema, THX MusicMode, Neo:6+THX, Off, or Last Used (see section 5.8.6).
• **DD-EX**	For material encoded in Dolby Digital Surround EX. Select Dolby Digital EX: On, Auto, Off, or Last Used. It is also possible to set On or Auto together with THX Surround EX – this allows automatic engagement of THX Surround EX for flagged Surround EX material while engaging a different THX mode for non-flagged material (see section 5.8.4).
• **DTS-ES**	For DTS-ES material. Select Neo: 6 On or Auto, with or without THX, or Last Used (see section 5.8.5).

Use the ▲ ▼ buttons to highlight one of the lines above in the menu, then use the ◀ ▶ buttons to scroll through the selections.

Certain combinations are not possible, for example, Dolby Digital EX can only take effect if THX is off. Should a conflict arise, the rules by which the AVM 20 overrides settings are as follows:

When THX is set to Cinema, Ultra2 Cinema, MusicMode, or Surround EX and...

- Dolby Digital EX is set to **Off**, then the selected THX mode takes effect.
- Dolby Digital EX is set to **On**, then THX Surround EX is automatically engaged.
- Dolby Digital EX is set to **Auto** and the source material has no Dolby Digital Surround EX flag, then the selected THX mode takes effect.
- Dolby Digital EX is set to **Auto** and the source material is flagged, then THX Surround EX is automatically engaged.

7. SETUP MENU continued …

SOURCE SETUP/PRESET EXAMPLES

Example 1: Rename AUX to 'GAME'.

- Enter the Setup (section 7.1). Go to '5. SOURCE SETUP / PRESETS' and press **SELECT**.
- Press the ▾ button until you reach 'j. AUX' and press **SELECT**.
- 'a. RENAME: AUX' will be highlighted in red.
- Press **SELECT**. The first character 'A' will be highlighted in red.
- Use the Master Control Knob or the ▲ ▾ buttons to change characters. Change the first one to 'G'.
- Press the ▸ button to move to the next character. Change it to 'A'.
- Use the ◂ ▸ buttons to move to each remaining character. Change to 'M' and 'E'.
- Press **BACK** to leave the submenu and return to the main menu.

Example 2: Change SAT Digital Input from 'RCA' to 'Toslink1' (TOS1).

- Make sure satellite receiver is connected to TOS1 and playing.
- Enter the Setup (section 7.1). Go to '5. SOURCE SETUP / PRESETS' and press **SELECT**.
- Press the ▾ button until you reach 'h. SAT' and press **SELECT**.
- Press the ▾ button until you reach 'b. AUDIO IN: Dig RCA DVD' and press **SELECT**.
- 'RCA DVD' will be highlighted. Use the ▲ ▾ buttons to change to 'TOS1' (sound will now be heard).
- Press **BACK** to leave the submenu and return to the main menu.

Example 3: Adjust TAPE Source Equalization.

- Make sure TAPE source component is connected to Analog Inputs and playing.
- Enter the Setup (section 7.1). Go to '5. SOURCE SETUP / PRESETS' and press **SELECT**.
- Press the ▾ button until you reach 'd. TAPE' and press **SELECT**.
- Press the ▾ button until you reach 'c. EQ' and press **SELECT**.
- Use the ◂ ▸ buttons to move to 'LF' or 'HF'. Use the ▲ ▾ buttons to adjust.
- Press **BACK** to leave the submenu and return to the main menu.

Example 4: Set SAT Audio Group Delay to 60 milliseconds.

- Enter the Setup (section 7.1). Go to '5. SOURCE SETUP / PRESETS' and press **SELECT**.
- Press the ▾ button until you reach 'h. SAT' and press **SELECT**.
- Press the ▾ button until you reach 'f. AUDIO GROUP DELAY' and press **SELECT**.
- Use the ◂ ▸ buttons to move from digit to digit and the ▲ ▾ buttons to adjust to '60 ms'.
- Press **BACK** to leave the submenu and return to the main menu.

7.4.6 ADJUST INPUT LEVELS

For Sources set to Anlg-DSP or Anlg-Dir in menu 5, you can match input levels in MAIN to each other so there are no large changes in volume as you change Sources.

```
  6.    ADJUST INPUT LEVELS
        Adjustment only applies when
        Audio-In is set to Analog
   a.         CD :     +0.0 dB
   b.        2-Ch :    +0.0 dB
   c.        6-Ch :    +0.0 dB
   d.        TAPE :    +0.0 dB
   e.       FM/AM :    −5.0 dB
   f.         DVD :    +0.0 dB
   g.          TV :    +0.0 dB
   h.         SAT :    +0.0 dB
   i.         VCR :    +0.0 dB
   j.         AUX :    +0.0 dB
```
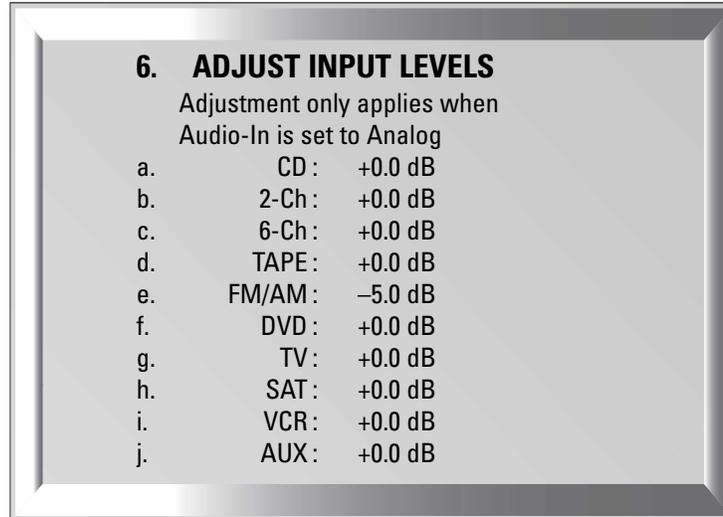
If a source that is set to Analog-DSP is playing while you adjust the Input Level, you will notice a vertical bar graph to the left of the dB setting. With the On-Screen display, if this Bar Graph changes from green to pink, you have gone into an overload condition. Reduce the level until the bar graph changes back to green.

Before making changes or adjustments in this menu, have all connected source components playing similar music material. Then, as you switch through each highlighted Source, you will hear that component play. This lets you know that each component is connected to the AVM 20, and it also allows for easy comparative level adjustments of analog sources. Remember, adjusting input levels only functions with Sources set to Analog in menu 5, and the bar graph only works with Analog-DSP setting.

Example: Adjust TAPE Input Level.

- Make sure a source component is connected to TAPE Analog L/R Input and playing.

- Enter the Setup (section 7.1). Go to '6. ADJUST INPUT LEVELS' and press **SELECT**.

- Press the ▾ button until you reach 'd. TAPE: +0.0 dB'.

- Press **SELECT**. '+0.0 dB' will be highlighted in red.

- Use the ▴ ▾ buttons to change the Level (keep the bar graph green).

- When finished, press **BACK** and then ▴ ▾ to go to another Source, or...

- Press **BACK** to leave the submenu and return to the main menu.

7.4.7 A-D/AUDIO-OUT FORMAT

In the A-D/Audio-Out Format menu you can re-configure the Surround and Rear channels, set analog to digital conversion parameters for the digital Record output, and configure the balanced analog outputs.

```
7.    A-D/AUDIO-OUT FORMAT
          See OPERATING MANUAL for
               detailed instructions
      a. 6-Ch REVERSE SUR/REAR :  No
      b. COPY SUR TO REAR :  No
      c. 6-ch Anlg-DSP fs :  96 kHz
      d. 2-ch Anlg-DSP fs :  44.1 kHz
      e. DIG1 when -MAIN->REC :  24 Bit
      f. DIGITAL2 :  Digital 1
      g. BAL OUT :  Ctr2/Sub2
```
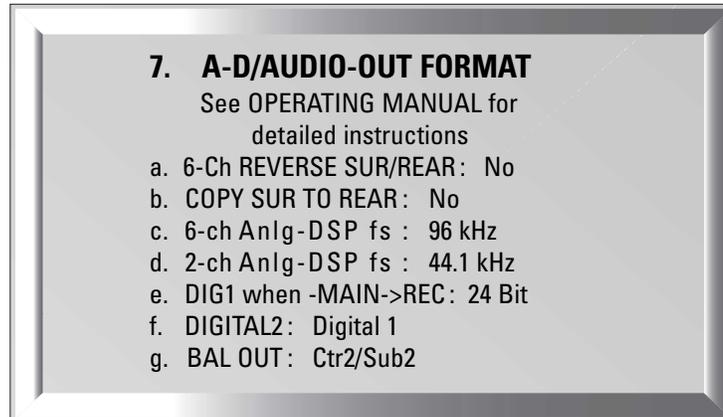
Reverse Surrounds/Rears:

If you're using a 7.1 speaker system and prefer the Rear speakers instead of the Surrounds when 6-Ch S/E is selected, set REVERSE SUR/REAR to 'Yes' and **re-connect the AVM 20 as follows**: Surround outputs on the AVM 20 to the Rear inputs on your amplifier, and the Rear AVM 20 outputs to the Surround amplifier inputs. The 6-Ch Surround inputs will now play through your Rear speakers. The AVM 20 flips the SUR/REAR channels back to normal whenever THX is turned on for the 6-Ch input or when any other input is selected, thereby maintaining correct speaker configuration at all times.

Copy Surrounds to Rears:

When playing material or using a Mode that has Surround channel information but no Rear information, setting this to 'Yes' plays the Surround channel out of both sets of speakers.

Sampling Frequency (fs):

When a Source that is set to Anlg-DSP is copied from MAIN to RECORD, the analog signal is converted to digital using the AVM 20's high-end A/D converters, and sent to DIGITAL1. This is useful for recording analog music on a CD burner or computer with S/PDIF input on the sound card. You can select from 44.1, 48, 88.2, or 96 kHz sampling rates. Recording level is set by the input level in menu 6 (see sections 5.2.1 and 7.4.6).

> This is also the signal processing rate for MAIN. Other than AnthemLogic, **certain surround Modes do not function when '2-Ch Anlg-DSP fs' is set to 88.2 or 96 kHz**. Therefore leave this set to 44.1 or 48 kHz unless a recording is being made, and then use 48, 88.2, or 96 kHz only if the equipment connected to DIGITAL1 and DIGITAL2 is capable of accepting those sampling rates.

For the 6-Ch S/E input, a separate setting is used so that bass management, time alignment, Mode, Bass/Treble, Audio Group Delay, and THX can be performed at the same high resolution that DVD-Audio and SACD provide. When 6-Ch S/E is copied from MAIN to RECORD, the DIGITAL1 output is a 2-channel downmix.

Bit Rate of DIGITAL1 when MAIN is copied to REC**:**

Choose from 16 or 24 bit output, to match the recorder. At 16 bits, dither is added to improve low level signals.

Output of DIGITAL2:

Set it to have the same output as DIGITAL1, or a fixed output from any Source set to Digital (DVD, SAT, etc.). DIGITAL1 and DIGITAL2 transmit data from digital sources in the same format it comes in – if it's Dolby Digital or DTS encoded, it stays that way and can be linked to other digital equipment.

Balanced Output:

If the Balanced CENTER2 and SUB2 outputs are not in use for a second Center channel or Subwoofer in MAIN, they can be used as Balanced ZONE2 L/R outputs (see section 4.2.5).

7.4.8 VOLUMES / RENAME PATHS

This menu allows you to define the power-on volume settings, set whether or not MAIN outputs shut off when headphones are used, and to rename ZONE2, ZONE3, and RECORD.

	8. **VOLUMES / RENAME PATHS**	
a.	MUTE LEVEL:	Silent
b.	MAIN ON VOLUME:	−35.0 dB
c.	MAIN MAX VOLUME:	+10.0 dB
d.	ZONE2 ON VOL:	−35.0 dB
e.	ZONE2 MAX VOL:	+0.0 dB
f.	ZONE3 ON VOL:	−35.0 dB
g.	ZONE3 MAX VOL:	+0.0 dB
h.	HPHONE ON VOL:	−20.0 dB
i.	HPHONE MAX VOL:	+0.0 dB
j.	HPHONE MUTE SPK:	No
k.	RENAME ZONE2:	ZONE2
l.	RENAME ZONE3:	ZONE3
m.	RENAME RECORD:	RECORD
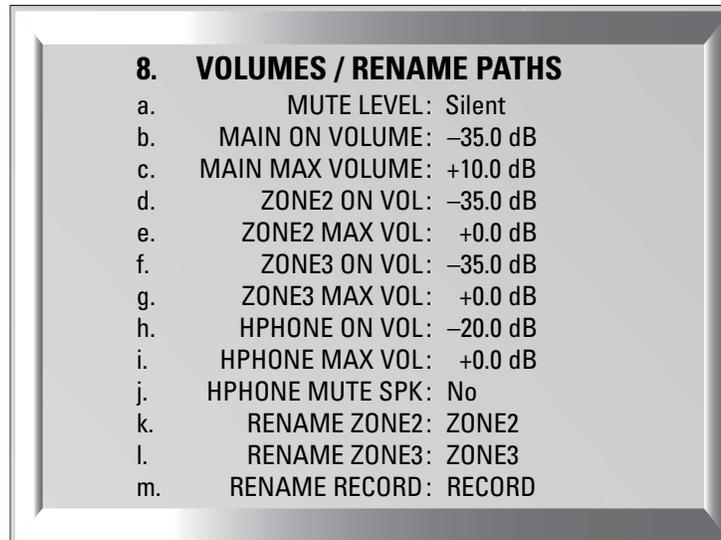
Mute Amount:
When MUTE is pressed, sound can cut out completely, or decrease in volume by the amount that you set to keep some of it in the background – select from 'Silent', or –5 to –30 dB in 5 dB steps.

Power-On Volume:
When you turn MAIN, ZONE2, or ZONE3 on, or plug in your headphones, the volume for each will come on at the known levels you have set in this menu. This avoids any potential 'surprises' of not knowing the volume someone had set when turning the AVM 20 off, and then having the power-on volume be either too loud or quiet. You can set independent volumes for MAIN, ZONE2, ZONE3, and HEADPHONE.

Maximum Volume:
These settings allow you to individually limit the volume of MAIN, ZONE2, ZONE3, or HEADPHONE to avoid damaging your equipment and/or your ears. This can also serve as a parental volume control feature. The range of settings available for MAIN is from –95.5 dB to +31.5 dB in steps of .5 dB, and for ZONE2, ZONE3, and HEADPHONE, the range is from –70.0 dB to +10.0 dB in 1.25 dB steps.

To set a fixed output for ZONE2 or ZONE3, scroll MAX VOL past +10.0 dB to set 'LockOnVol' and then set the desired fixed output level in ON VOL. When the Path is on, 'Lock' is displayed beside the volume readout to indicate that its volume cannot be changed with the volume control.

Headphone Mutes Speakers:
Determines whether or not the MAIN speakers turn off when headphones are plugged into the Front Panel:

- **'Yes'** The MAIN speakers mute. "HPHONE" is displayed instead of "MAIN" to indicate that adjusting Volume, Bass, Treble, and Balance affect HEADPHONE only.

- **'No'** MAIN speakers continue to play when headphones are plugged in. (To make headphone adjustments see sections 5.2 to 5.7.)

Rename Path:
The factory assigned Path names that appear on the Front Panel and On-Screen displays can be changed to another name up to six characters long – procedure is the same as Rename Source (section 7.4.5).

7.4.9 TRIGGERS / IR / RS-232

When a trigger output on the AVM 20 is connected to the trigger input of another component, such as a power amplifier or video projector, the AVM 20 can turn the component on or off according to the trigger's Setup. For components that do not use triggers, a triggerable power bar may work (see your dealer).

- **Trigger1** and **Trigger2:** Provide standard trigger output of 12 volts with up to **50 mA** of current, suitable for typical source components and most amplifiers.

- **Trigger3:** Provides an output of 12 volts with up to **200 mA** of current, suitable for triggers on motorized projection equipment and very high power amplifiers.

There is a quarter of a second delay between each trigger to minimize momentary line voltage drops caused by switching on too many devices at the same time.

```
9.      TRIGGERS / IR / RS-232
a.          ALL TRIGGERS : Disabled
b.          SET TRIGGER 1
c.          SET TRIGGER 2
d.          SET TRIGGER 3
e.          SET IR-INPUTS
f.           BAUD RATE : 19200
g.        FLOW CONTROL : None
h.      RS-232 TX STATUS : Off
```
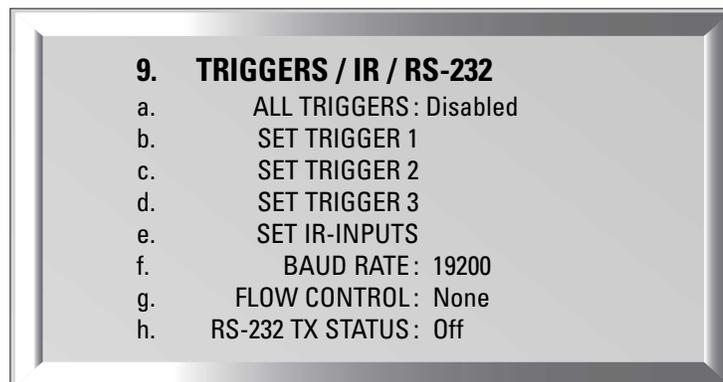
All Triggers:
Allows you to 'Enable' or 'Disable' all trigger options regardless of their settings. For custom installations, 'RS-232 Ctrl' defeats the settings and allows external control over all triggers.

Set Trigger:
Highlighting 'b. SET TRIGGER 1' and then pressing **SELECT** displays this menu – in the example shown, TRIGGER 1 activates whenever MAIN power is turned on:

```
9b.   SET TRIG-1 SOURCES - 50mA
                      MAIN    Z2    Z3    REC
a.   POWER ON :        *       –      –
b.   CD         :      –       –      –      –
c.   2-Ch       :      –       –      –      –
d.   6-Ch       :      –
e.   TAPE       :      –       –      –      –
f.   FM/AM      :      –       –      –      –
g.   DVD        :      –       –      –      –
h.   TV         :      –       –      –      –
i.   SAT        :      –       –      –      –
j.   VCR        :      –       –      –      –
k.   AUX        :      –       –      –      –
```
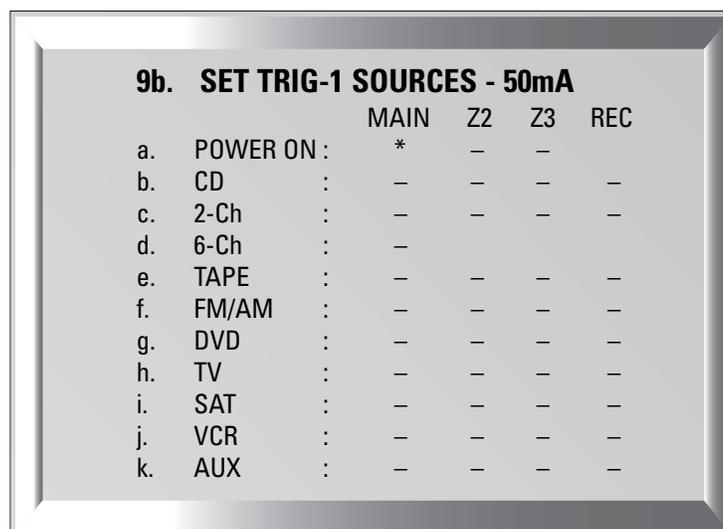
Under each of the four AVM 20 Paths, MAIN, ZONE2 (**Z2**), ZONE3 (**Z3**), and RECORD (**REC**), notice that there are 40 available Sources (40 dashes) that could be used to activate the trigger. After highlighting POWER ON or a Source, press **SELECT** and use the ◂ ▸ buttons to move from one Path to another, and then to set the trigger to activate, use the ▲ ▼ buttons to change the '–' to a '*'.

> **Note:** Changes to the trigger setup do not take effect until the Setup Menu is exited completely, to avoid unnecessary rapid turning off and on of triggers while changes are being made.

Set IR Inputs:

This allows you to enable or disable the AVM 20's Front IR Receiver and Rear IR Inputs. Being able to do so can be useful when an IR repeater, connected to the AVM 20, is located in the same room as the AVM 20. In such a case, the AVM 20 can receive two IR signals for the same command – one from the Remote Control and one from the repeater. The problem is that rear signal is delayed slightly, and may confuse the IR Receivers' control circuits. Disabling the Front IR solves this problem.

In other situations, the IR signal may find its way to the internally mounted IR receiver through the vents in the top cover. This could also cause confusion for the AVM 20. If the Rear IR inputs are not in use, simply disable them to prevent any potential problems.
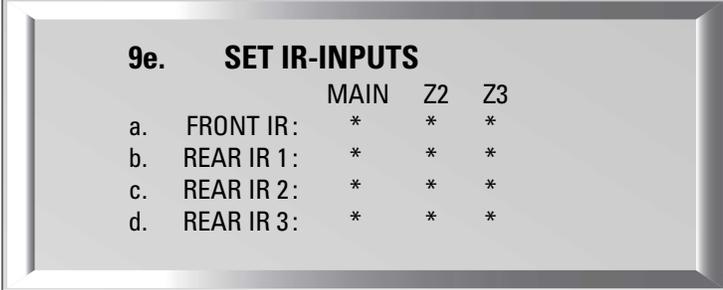
```
9e.      SET IR-INPUTS
                     MAIN   Z2    Z3
     a.    FRONT IR :    *      *     *
     b.    REAR IR 1 :   *      *     *
     c.    REAR IR 2 :   *      *     *
     d.    REAR IR 3 :   *      *     *
```

After highlighting an IR input, press **SELECT** and use the ◄ ► buttons to move from one Path to another. To turn the input off, use the ▲ ▼ buttons to change the '*' to a '–'. Do this through the Front Panel, since Remote Control commands are ineffective once an IR sensor is turned off.

> **Note:** If the AVM 20 does not respond to Remote Control commands, check the FRONT IR menu – enter the Setup using the Front Panel buttons, go to menu '9. TRIGGERS/IR/RS-232', followed by 'e. SET IR-INPUTS', and make sure the FRONT IR settings are set to '*'.

Baud Rate and Flow Control:

The Baud Rate (adjustable from 1200 to 115200 bps), and Flow Control ('RTS', 'CTS', or 'None'), allow configuration of the serial port communication parameters (normally for use by dealer/installers only).

RS-232 TX Status:

When 'On', all commands, status changes, and control information are echoed through the RS-232 port (normally for use by dealer/installers only).

Example: Activate Trigger1 when DVD is selected in MAIN.

- Enter the Setup (section 7.1). Go to '9. TRIGGERS/IR/RS-232' and press **SELECT**.

- Upon entering this menu item, 'a. ALL TRIGGERS: Disabled' will be highlighted in red.

- Use the ◄ ► buttons to change to 'Enabled'.

- Press the ▼ button to go to 'b. SET TRIGGER 1. Press **SELECT**.

- Use the ▲ ▼ buttons to go to 'DVD'. Press **SELECT**.

- Use the ▲ ▼ buttons to change the '–' to '*'.

- Press **BACK** twice to leave this submenu.

7.4.10 DISPLAYS / TIMEOUT

This menu allows you to configure both the On-Screen display, Front Panel display and Selection Time.

```
    10.    DISPLAYS / TIMEOUT
    a.      MAIN ON-SCREEN :  Comp + S-V
    b.       MAIN OS INFO :  All Zones
    c.       MAIN OS POS'N :  Bottom
    d.      MAIN OS COLOR :  Blue
    e.        Z2 ON-SCREEN :  Comp + S-V
    f.          Z2 OS INFO :  Z2 Only
    g.         Z2 OS POS'N :  Bottom
    h.        Z2 OS COLOR :  Blue
    i.         FRT PANEL-HI :  15
    j.       FRT PANEL-MED :  10
    k.      FRT PANEL-LOW :  5
    l.          FP WAKE-UP :  Up 1
    m.  FUNCTION TIMEOUT :  5 s
```
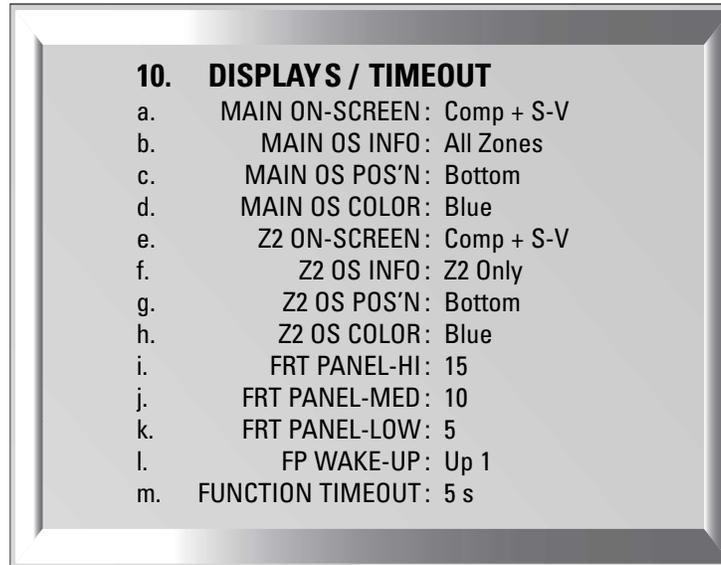
Main / Z2 On-Screen:
Lets you select the outputs that receive the On-Screen display – 'Composite', 'S-Video', or both. 'Bypassed' turns the On-Screen display off; if you choose 'Bypassed', you will have to rely on the Front Panel display.

> **Note:** On-Screen display is not available for Component Video.

Main / Z2 OS Info:
From here, select the Path adjustments that are shown by the MAIN or ZONE2 On-Screen displays. For example, if ZONE2 is set up with an IR repeater for the Remote Control, and you are using the AVM 20 in the MAIN room, you may not want to be disturbed by information about adjustments made in ZONE2 by someone else. In a different situation, you may want to see the ZONE2 information, for example, while adjusting ZONE2 yourself from the MAIN room.

Main / Z2 OS Position:
Allows you to position the On-Screen display to reduce the chance of it interfering with the on-screen display positions of other video components (e.g. satellite receiver or a TV monitor's own display, etc.). Choose from: 'Bottom', 'Mid', or 'Top'.

Main / Z2 OS Color:
If the On-Screen display of the Setup Menu appears unstable, it could be that your monitor is not synchronizing to the blue (factory default) background color. You can change the background color to one that your projector/monitor can synchronize to – black and magenta are also available.

Front Panel Brightness:
Simultaneously adjusts the intensity level of the Front Panel display and LED indicators. Three separate adjustments can be made – HI, MED, and LOW when the DISPLAY button is used (section 5.9). Use HI to set the daytime level, MED for the evening level and LOW for the nighttime level.

Front Panel Wake-Up:
If Display is set to Medium, Low, or Off, it can be made to change to a brighter level while you make any adjustment, to either one level higher or Hi – choose 'None', 'Up 1', or 'Hi'. When 'None' is chosen and the Display is Off, it will behave as if set to 'Up 1' to prevent confusion as to whether the power is on or off.

Function Timeout:
This is the time that elapses after any adjustment is made. Once the Function Time elapses, the On-Screen text disappears and the Front Panel display becomes dim. This also applies to how long ZONE2, ZONE3, RECORD, and HEADPHONE information is displayed before MAIN display information returns. You can set Function Timeout between 1 and 15 seconds.

Example: Set the position of the MAIN On-Screen information to the middle of the monitor.

- Enter the Setup (section 7.1). Go to '10. DISPLAYS/TIMEOUT' and press **SELECT**.

- Press the ▼ button until you reach 'c. MAIN OS POS'N: Bottom'.

- Use the ◀ ▶ buttons to change to 'Middle'.

- When finished, press ▲ ▼ to go to another menu item, or…

- Press **BACK** to leave the submenu and return to the main menu.

7.4.11 SAVE / RESTORE SETTINGS

The AVM 20 enables you to save your entire Setup configuration. Two separate save files are provided: USER SETTINGS and INSTALLER SETTINGS. If your system is set up by your dealer, the configuration can be saved in the INSTALLER file by the dealer. You can then make further Setup adjustments – save those settings separately in your own USER file. FM•AM presets are also saved separately in USER SETTINGS and INSTALLER SETTINGS.

If someone makes unwanted changes to the Setup Menu of your AVM 20, you can quickly and easily restore either the dealer's INSTALLER settings or your USER settings, thereby preventing the need to run through the Setup procedure all over again. FM•AM presets saved in USER SETTINGS or INSTALLER SETTINGS will also be restored.

The original FACTORY DEFAULTS can also be reloaded at any time to reset the AVM 20 to the factory settings. As well, surround mode level, balance and bass/treble adjustments described in sections 5.6 and 5.7 will be reset to 0 dB, and Mode settings described in section 5.8 will be reset to 'None' for all Sources.

> **11. SAVE / RESTORE SETTINGS**
> a. SAVE USER SETTINGS
> b. RESTORE USER SETTINGS
> c. SAVE INSTALLER SETTINGS
> d. RESTORE INSTALLER SET'NS
> e. RELOAD FACTORY DEFAULTS

Save Settings:
You can save settings with or without the use of a Password. Passwords are very easy to set up (see section 7.4.12) and will protect both USER and INSTALLER files from being changed by anyone who doesn't have the Password. **New saves will overwrite the previously saved file**. The AVM 20 will prompt you to confirm that you want to over-write currently saved settings – press **BACK** at this point to abort a save.

Restore or Reload Settings:
You may RESTORE USER SETTINGS, INSTALLER SETTINGS, or RELOAD FACTORY DEFAULTS at will. The AVM 20 will prompt you to confirm that you want to replace the current settings – press **BACK** at this point to abort a restore.

Example 1: Save User Settings.

> **Note:** FM•AM Tuner presets will also be saved in USER SETTINGS.

- Enter the Setup (section 7.1). Go to '11. SAVE/RESTORE SETTINGS' and press **SELECT**.

- Upon entering this menu item, 'a. SAVE USER SETTINGS' will be highlighted in red.

- Press **SELECT**. You will be asked to confirm that you want to over-write current settings.

- Use the ◄ ► buttons and change to 'Yes'. If you are using a Password (section 7.4.12), you will be asked for it. Use the **0 – 9** buttons to enter your Password. The On-Screen display message will then say 'Saving Successful', the Front Panel display will say 'Done!'.

- When finished, press ▲ ▼ to go to another menu item, or...

- Press **BACK** to leave the submenu and return to the main menu.

Example 2: Restore Installer Settings.

Note: FM•AM Tuner presets that were saved in INSTALLER SETTINGS will also be restored.

- Enter the Setup (section 7.1). Go to '11. SAVE/RESTORE SETTINGS' and press **SELECT**.

- Press the ▼ button until you reach 'd. RESTORE INSTALLER SET'NS'.

- Press **SELECT**. You will be asked to confirm that you want to restore installer settings.

- Use the ◀ ▶ buttons to change to 'Yes' and press **SELECT**. On-Screen display message will then say 'Saving Successful', the Front Panel display will say 'Done!'.

- When finished, press ▲ ▼ to go to another menu item, or…

- Press **BACK** to leave the submenu and return to the main menu.

Example 3: Reload Factory Defaults.

Note: The current time and FM•AM Tuner presets will be retained. Surround mode level, balance, bass/treble adjustments (sections 5.6 and 5.7), and Modes (section 5.8) will be reset to +0.0 dB.

- Enter the Setup (section 7.1). Go to '11. SAVE/RESTORE SETTINGS' and press **SELECT**.

- Press the ▼ button until you reach 'e. RELOAD FACTORY DEFAULTS'.

- Press **SELECT**. You will be asked to confirm that you want to 'reload factory settings'.

- Use the ◀ ▶ buttons to change to 'Yes' and press **SELECT**. On-Screen display message will then say 'Saving Successful', the Front Panel display will say 'Done!'.

- When finished, press ▲ ▼ to go to another menu item, or…

- Press **BACK** to leave the submenu and return to the main menu.

7.4.12 LOCKOUT / PASSWORDS

Passwords are used to protect the saved User and Installer settings. Once you have set a password, it can also be used as a Lockout to prevent settings from being changed by anyone without one of the passwords.

12. LOCKOUT / PASSWORDS
a. SET SETUP MENU LOCKOUT
b. SET USER PASSWORD
c. SET INSTALLER PASSWORD

Set Setup Menu Lockout:
When set to 'Yes', this prevents anyone without a password from entering the Setup. When you attempt to enter the Setup, you will be asked for your Password – either the USER or INSTALLER Password must then be entered from the Remote Control before you will be allowed to continue.

Set User or Installer Password:
When setting the USER or INSTALLER Password, you will be asked to enter a four digit number. Pick one that you will remember easily. To enter that number, use the **0 – 9** keys on the Remote Control (password cannot be entered from the Front Panel). To change an existing password, enter the old one first, then enter (and confirm) the new one.

Example 1: Set User Password (Remote Control only).

- Enter the Setup (section 7.1). You must enter the USER or INSTALLER Password if there is one.

- Go to '12. LOCKOUT/PASSWORDS' and press **SELECT**.

- Press the ▼ key to go to 'b. SET USER PASSWORD'.

- Press **SELECT**. You will be asked to enter a four digit number. Use the **0 – 9** keys to do so. If you are changing your Password you will be asked to enter your old Password first. You will also be asked to confirm your new Password (re-enter your new Password).

- When finished, press ▲ ▼ to go to another menu item, or...

- Press **BACK** to leave the submenu and return to the main menu.

Clearing the User Password: When asked for your new Password, press the ▶ key four times. You will also be asked to confirm your new Password – press the ▶ key four times again. Message will then say 'User Password Removed'.

Example 2: Set Setup Menu Lockout.

- Enter the Setup (section 7.1). Go to '12. LOCKOUT/PASSWORDS' and press **SELECT**.

- Upon entering this menu item, 'a. SET SETUP MENU LOCKOUT' will be highlighted in red.

- Press **SELECT**. You will be asked to enter your Password. Either the USER or INSTALLER Password will work. Use the **0 – 9** keys to do so.

- Use the ◀ ▶ buttons to change to 'Yes' or 'No'.

- Press **SELECT** or **BACK.**

- When finished, press ▲ ▼ to go to another menu item, or...

- Press **BACK** to leave the submenu and return to the main menu.

8. SOFTWARE **UPDATING**

The operational characteristics of the AVM 20 are controlled by software that can be easily upgraded via the RS-232 port on the Rear Panel. New software can be downloaded from our web site, and then transferred by connecting the AVM 20 to your computer's serial port and running the Software Installer.

8.1   SOFTWARE VERSION IDENTIFICATION

If you want to see which Software Version is in your AVM 20, press **STATUS**. The display will show:

```
AVM 20 Version 2.xx
<Today's Date&Time>
```

Please contact your dealer or visit the AVM 20 page on our web site at **www.anthemAV.com** to find the latest Software, and any operating manual updates that go along with new versions.

8.2   SOFTWARE UPDATING VIA YOUR DEALER

To do this, you will have to take your AVM 20 to your Authorized Anthem Dealer. To save yourself time and trouble, please remember to call your dealer first to find out if you should get the latest Software version, and then arrange a time to install the update. **Note:** Your dealer may charge for this service.

8.3   SOFTWARE UPDATING VIA YOUR COMPUTER AND THE INTERNET

To update the Software through your computer, you will need the following:

- Access to the Internet.
- Serial cable – straight wired, with one end DB9 male for the AVM 20, and the other, DB9 female or DB25 female for your computer. A similar looking null-modem cable will <u>not</u> work.

  Typically, a cable length of up to 100 feet (33 meters) will work for a long distance connection to your computer. You may also install this cable permanently to enable easy future updates. When it's not in use, disconnecting it either behind the computer or the AVM 20 is recommended, to prevent the possibility of a ground loop.

Computer System Requirements:

- Win9x, NT, ME, 2000, or XP.
- 1 MB free space on the hard drive.
- Serial port. The Software Installer automatically detects the port being used (COM1 to COM4). **If your computer does not have a serial port but has a USB port**, you will need a USB-to-serial adapter (its driver program must also be installed on your computer).

Note: Before running the Installer, check the computer's power management settings to ensure that the Software Update does not get interrupted while running.

Software installation procedure:

1. Find out which Software version you currently have by pressing **STATUS**.

2. Go to the ANTHEM web site (**www.anthemAV.com**) and locate the latest AVM 20 Software version. Proceed only if your version is a lower number, indicating that it is older.

3. Click on the download icon. You will be asked where to save a file called 'avm20install.zip' – save it to your computer's desktop.

4. Double click on 'avm20install.zip'. If you computer tells you that the file cannot be opened, you can download a program that can open the file through one of the links on the ANTHEM web site.

5. Drag or extract 'AVM 20 Installer.exe' and 'Read Me First.txt' to desktop. 'Read Me First.txt' lists the latest software changes. You can now delete 'avm20install.zip'.

6. Ensure that your current AVM 20 Setup configuration is saved (see section 7.4.11).

7. Turn off your AVM 20 and **disconnect the power cord** to prevent the possibility of a static discharge when the serial port is connected. Tuner presets, speaker level settings, bass/treble, etc. are automatically written to memory if the line voltage is disconnected or during a power failure.

8. Using the serial cable, connect your computer to the AVM 20 via the RS-232 port on the rear panel. Updating does not require moving the AVM 20 or disconnecting it from your system, as long as you can connect your computer to the RS-232 port.

9. Plug the AVM 20's power cord back in and turn the rear panel switch on.

10. Double click on 'AVM 20 Installer.exe', then click on 'Install Upgrade Now'. In a few minutes, the installation and verification will be completed.

Restore Settings?
You do not need to Restore or Recall any settings after installing new software. The AVM 20 will retain the settings that were in use before the update, except that the day and time will be set according to your computer's day and time settings – if re-adjustment is required, see section 7.4.1.

Troubleshooting:
If the Installer keeps returning a message that says 'AVM 20 Not Found' after several attempts, restore Factory Defaults in the Setup Menu, try installing again, and reload User Settings once the new software is installed. If that doesn't work, make sure that the serial port on your computer isn't already being used by another application, such a docking station for a personal organizer – you must go into the application that is using it to turn off the serial port.

DIRECT MODE/BANK ACCESS:

Using the AVM 20 IR codes for MAIN Path, the following 3-key sequences can be programmed into macro-capable remotes for direct access to Modes and tuner banks:

For Stereo Sources:
MODE, 0, 1 – Stereo
MODE, 0, 2 – AnthemLogic-Music
MODE, 0, 3 – AnthemLogic-Cinema
MODE, 0, 4 – Pro Logic II-Music
MODE, 0, 5 – Pro Logic II-Movie
MODE, 0, 6 – Dolby Pro Logic
MODE, 0, 7 – DTS Neo:6-Music
MODE, 0, 8 – DTS Neo:6-Cinema
MODE, 0, 9 – All-Channel Stereo
MODE, 1, 0 – All-Channel Mono
MODE, 1, 1 – Mono
MODE, 1, 2 – Mono-Academy

THX, 0, 1 – THX Cinema Off
THX, 0, 2 – THX Cinema On

For Dolby D-2.0 Sources:
MODE, 2, 1 – Stereo
MODE, 2, 2 – AnthemLogic-Music
MODE, 2, 3 – AnthemLogic-Cinema
MODE, 2, 4 – Pro Logic II-Music
MODE, 2, 5 – Pro Logic II-Movie
MODE, 2, 6 – Dolby Pro Logic
MODE, 2, 7 – DTS Neo:6-Music
MODE, 2, 8 – DTS Neo:6-Cinema
MODE, 2, 9 – All-Channel Stereo
MODE, 3, 0 – All-Channel Mono
MODE, 3, 1 – Mono
MODE, 3, 2 – Mono-Academy

MODE, 3, 7 – Pro Logic II-Movie Off
MODE, 3, 8 – Pro Logic II-Movie On
MODE, 3, 9 – Pro Logic II-Movie Auto

THX, 0, 3 – THX Cinema Off
THX, 0, 4 – THX Cinema On

Pro Logic II-Music Adjustment:
MODE, 4, 1 – Center Width display
MODE, 4, 2 – Dimension display
MODE, 4, 3 – Panorama Off
MODE, 4, 4 – Panorama On

Neo:6-Music Adjustment:
MODE, 4, 5 – Center Image display

For Dolby D-5.1 Sources:
MODE, 5, 1 – Dolby Digital EX Off
MODE, 5, 2 – Dolby Digital EX On
MODE, 5, 3 – Dolby Digital EX Auto

THX, 1, 0 – THX Off
THX, 1, 1 – THX Cinema
THX, 1, 2 – THX Ultra2 Cinema
THX, 1, 3 – THX MusicMode
THX, 1, 4 – THX Surround EX

For DTS Sources:
MODE, 6, 1 – Neo:6 Off
MODE, 6, 2 – Neo:6 On

THX, 2, 0 – THX Off
THX, 2, 1 – THX Cinema
THX, 2, 2 – THX Ultra2 Cinema
THX, 2, 3 – THX MusicMode
THX, 2, 4 – THX for DTS-ES

THX Re-Eq:
THX, 3, 0 – Re-Eq Off
THX, 3, 1 – Re-Eq On

FM•AM Banks (ZONE2/3/REC codes also work)**:**
MODE, 9, 0 – AM
MODE, 9, 1 – FM1
MODE, 9, 2 – FM2
MODE, 9, 3 – FM3

MANUFACTURER'S CODES:

Statement D1 and AVM 20 – MAIN	0040
Statement D1 and AVM 20 – ZONE2	0041
Statement D1 and AVM 20 – ZONE3	0042
AVM 2 – MAIN	0043
AVM 2 – ZONE2	0044
CD 1	0897
Sonic Frontiers SFT 1	0157
Sonic Frontiers SFCD 1	0157
Sonic Frontiers Transport 3	0157

TVs:

AOC	0030, 0019
Admiral	0093, 0463
Aiko	0092
Akai	0030
Alaron	0179
Ambassador	0177
America Action	0180
Ampro	0751
Anam	0180
Audiovox	0451,0180, 0092, 0623
Baysonic	0180
Belcor	0019
Bell & Howell	0154, 0016
Bradford	0180
Brockwood	0019
Broksonic	0236, 0463
CXC	0180
Candle	0030, 0056
Carnivale	0030
Carver	0054
Celebrity	0000
Cineral	0451, 0092
Citizen	0060, 0030, 0056, 0039, 0092
Concerto	0056
Contec	0180
Craig	0180
Crosley	0054
Crown	0180, 0039
Curtis Mathes	0047, 0054, 0154, 0051, 0451, 0093, 0060, 0030, 0145, 0056, 0016, 0039, 0166, 0466, 1147, 1347
Daewoo	0451, 0019, 0039, 0092, 0623, 0624
Daytron	0019
Denon	0145
Dumont	0017, 0019
Dwin	0720, 0774
Electroband	0000
Emerson	0154, 0236, 0463, 0180, 0282, 0178, 0019, 0179, 0039, 0177, 0623, 0624
Envision	0030
Fisher	0154
Fujitsu	0179
Funai	0180, 0179, 0171
Futuretech	0180
GE	0047, 0051, 0451, 0093, 0282, 0178, 0021, 0135, 1147, 1347
Gibralter	0017, 0030, 0019
GoldStar	0030, 0178, 0019, 0056
Gradiente	0053, 0056
Grunpy	0180, 0179
Hallmark	0178
Harley Davidson	0179
Harman/Kardon	0054
Harvard	0180
Hitachi	0145, 0056, 0151
Infinity	0054
Inteq	0017
JBL	0054
JCB	0000
JVC	0053
KEC	0180
KTV	0180, 0030, 0039
Kenwood	0030, 0019
LG	0056

LXI	0047, 0054, 0154, 0156, 0178
Logik	0016
Luxman	0056
MGA	0150, 0030, 0178, 0019
MTC	0060, 0030, 0019, 0056
Magnavox	0054, 0030, 0179
Majestic	0016
Marantz	0054, 0030
Matsushita	0250
Megatron	0178, 0145
Memorex	0154, 0250, 0463, 0150, 0178, 0056, 0016
Midland	0047, 0017, 0051, 0039, 0135
Minutz	0021
Mitsubishi	0093, 0150, 0178, 0019
Motorola	0093
Multitech	0180
NAD	0156, 0178, 0166
NEC	0030, 0019, 0056
NTC	0092
Nikko	0030, 0178, 0092
Onwa	0180
Optimus	0154, 0250, 0166
Optonica	0093, 0165
Orion	0236, 0463, 0179
Panasonic	0051, 0250
Penney	0047, 0156, 0051, 0060, 0030, 0178, 0021, 0019, 0056, 0039, 0135, 1347
Philco	0054, 0463, 0030, 0145, 0019
Philips	0054
Pilot	0030, 0019, 0039
Pioneer	0166
Portland	0019, 0039, 0092
Prism	0051
Proscan	0047
Proton	0178, 0466
Pulsar	0017, 0019
Quasar	0051, 0250, 0165
RCA	0047, 0051, 0093, 0019, 0090, 0135, 1047, 1147, 1247, 1347
Radio Shack	0047, 0154, 0165, 0180, 0030, 0178, 0019, 0056, 0039
Realistic	0154, 0165, 0180, 0030, 0178, 0019, 0056, 0039
Runco	0017, 0030, 0603
SSS	0180, 0019
Sampo	0030, 0039
Samsung	0060, 0030, 0178, 0019, 0056
Samsux	0039
Sansei	0451
Sansui	0463
Sanyo	0154
Scimitsu	0019
Scotch	0178
Scott	0236, 0180, 0178, 0019, 0179
Sears	0047, 0054, 0154, 0156, 0178, 0179, 0056, 0171
Semivox	0180
Semp	0156
Sharp	0093, 0165, 0039
Shogun	0019
Signature	0016
Sony	0000
Soundesign	0180, 0178, 0179
Squareview	0171
Starlite	0180
Supreme	0000
Sylvania	0054, 0030
Symphonic	0171
TMK	0178, 0056, 0177
Tandy	0093
Technics	0051, 0250
Technol Ace	0179
Techwood	0051, 0056
Teknika	0054, 0180, 0150, 0060, 0019, 0179, 0056, 0016, 0039, 0092

Telefunken	0056
Toshiba	0154, 0156, 0060
Totevision	0039
Vector Research	0030
Victor	0053
Vidikron	0054
Vidtech	0178, 0019
Wards	0054, 0165, 0030, 0178, 0021, 0019, 0179, 0056, 0016
White Westinghouse	0463, 0623, 0624
Yamaha	0030, 0019
Zenith	0017, 0463, 0016, 0092

VCRs:

Admiral	0048, 0209
Adventura	0000
Aiko	0278
Aiwa	0037, 0000
Akai	0041
America Action	0278
American High	0035
Asha	0240
Audiovox	0037
Beaumark	0240
Bell & Howell	0104
Brocksonic	0209
Broksonic	0184, 0121, 0209, 0002
CCE	0072, 0278
Calix	0037
Canon	0035
Carver	0081
Cineral	0278
Citizen	0037, 0278
Colt	0072
Craig	0037, 0047, 0240, 0072, 0271
Curtis Mathes	0060, 0035, 0041, 0162
Cybernex	0240
Daewoo	0045, 0278
Denon	0042
Dynatech	0000
Electrohome	0037
Electrophonic	0037
Emerex	0032
Emerson	0037, 0184, 0000, 0121, 0043, 0209, 0002, 0278
Fisher	0047, 0104
Fuji	0035, 0033
Funai	0000
GE	0060, 0035, 0048, 0240
Garrard	0000
Go Video	0526
GoldStar	0037, 0038
Gradiente	0000
HI-Q	0047
Harley Davidson	0000
Harman/Kardon	0081, 0038
Harwood	0072
Headquarter	0046
Hitachi	0000, 0042, 0041
Hughes Net. Sys.	0042
JVC	0067, 0041
Jensen	0041
KEC	0037, 0278
KLH	0072
Kenwood	0067, 0041, 0038
Kodak	0035, 0037
LXI	0037
Lloyd's	0000
Logik	0072
MEI	0035
MGA	0240, 0043
MGN Technology	0240
MTC	0240, 0000
Magnasonic	0278
Magnavox	0035, 0039, 0081, 0000, 0149
Magnin	0240
Marantz	0035, 0081
Marta	0037
Matsushita	0035, 0162, 0454
Memorex	0035, 0037, 0048, 0039, 0047, 0240, 0000, 0104,

	0209, 0046, 1162, 1262
Minolta	0042
Mitsubishi	0048, 0067, 0043
Motorola	0035, 0048
Multitech	0000, 0072
NEC	0104, 0067, 0041, 0038
Nikko	0037
Noblex	0240
Olympus	0035
Optimus	0037, 0048, 0104, 0162, 0454, 1062, 1162, 1262
Orion	0184, 0209, 0002
Panasonic	0035, 0162, 0225, 0454, 1162
Penney	0035, 0037, 0240, 0042, 0038
Pentax	0042
Philco	0035, 0209
Philips	0035, 0081
Pilot	0037
Pioneer	0067
Profitronic	0240
Proscan	0060
Protec	0072
Pulsar	0039
Quarter	0046
Quartz	0046
Quasar	0035, 0162, 0454, 1162
RCA	0060, 0035, 0048, 0240, 0042, 0149
Radio Shack	0000
Radix	0037
Randex	0037
Realistic	0035, 0037, 0048, 0047, 0000, 0104, 0046
Runco	0039
STS	0042
Samsung	0240, 0045
Sanky	0048, 0039
Sansui	0000, 0067, 0209, 0041, 0271
Sanyo	0047, 0240, 0104, 0046
Scott	0184, 0045, 0121, 0043
Sears	0035, 0037, 0047, 0000, 0042, 0104, 0046
Semp	0045
Sharp	0048
Shintom	0072
Shogun	0240
Singer	0072
Sony	0035, 0032, 0000, 0033
Sylvania	0035, 0081, 0000, 0043
Symphonic	0000
TMK	0240
Tatung	0041
Teac	0000, 0041
Technics	0035, 0162
Teknika	0035, 0037, 0000
Thomas	0000
Toshiba	0045, 0043
Totevision	0037, 0240
Unitech	0240
Vector	0045
Vector Research	0038
Video Concepts	0045
Videosonic	0240
Wards	0060, 0035, 0048, 0047, 0081, 0240, 0000, 0042, 0072, 0149
White Westinghouse	0209, 0278
XR-1000	0035, 0000, 0072
Yamaha	0038
Zenith	0039, 0000, 0209, 0033

TV/VCR Combos:

American High	0035 (TV - 0051)
Brocksonic	0002, 0294
Colt	0072
Curtis Mathis	0035 (TV - 0051)
Daewoo	0278
Emerson	0002, 0294, 0479
Funai	0000
GE	0035 (TV - 0051),

	0060 (TV - 0047), 0048 (TV - 0093), 0240
Hitachi	0035 (TV - 0051), 0000
HQ	0000
Lloyds	0000
MGA	0240
Magnavox	0081 (TV - 0054), 0035 (TV - 0051), 0000
Magnin	0240
Memorex	0037, 0162 (TV - 0250)
Mitsubishi	0048 (TV - 0093)
Orion	0002, 0294, 0479
Panasonic	0035 (TV - 0051), 0162 (TV - 0250)
Penney	0035 (TV - 0051), 0240, 0162 (TV - 0250)
Quasar	0035 (TV - 0051), 0162 (TV - 0250)
RCA	0060 (TV - 0047), 0035 (TV - 0051), 0048 (TV - 0093)
Sansui	0000, 0479
Sanyo	0240
Sears	0000, 0037
Sharp	0048 (TV - 0093)
Sony	0032 (TV - 0000)
Symphonic	0000
Zenith	0000

Cable Converters:

ABC	0003, 0008, 0014, 0017, 0007, 0011, 0013
Allegro	0153, 0315
Archer	0153, 0797
Bell & Howell	0014
Century	0153
Citizen	0153, 0315
Comtronics	0040
Contec	0019
Eastern	0002
Emerson	0797
Everquest	0015,0040
Focus	0400
Garrard	0153
Gemini	0015
General Instrument	0476, 0276, 0011, 0810
GoldStar	0144, 0040
Goodmind	0797
Hamlin	0020, 0259, 0009, 0034
Hitachi	0011
Hytex	0007
Jasco	0015, 0153, 0315
Jerrold	0003, 0012, 0476, 0276, 0014, 0015, 0011, 0810
Memorex	0000
Movie Time	0063
NSC	0063
Oak	0019, 0007
Optimus	0021
Panasonic	0000, 0107, 0021
Paragon	0000
Philips	0153
Pioneer	0144, 0533
Popular Mechanics	0400
Pulsar	0000
Quasar	0000
RCA	0021
Radio Shack	0015, 0315, 0797, 0883
Recoton	0400
Regal	0020, 0259
Regency	0002
Rembrandt	0011
Runco	0000
SL Marx	0040
Samsung	0144, 0040
Scientific Atlanta	0008, 0477, 0017, 0877
Signal	0015, 0040
Signature	0011
Sprucer	0021

Starcom	0003, 0015
Stargate	0015, 0040, 0797
Starquest	0015
TV86	0063
Teleview	0040
Tocom	0012, 0013
Toshiba	0000
Tusa	0015
Unika	0153
United Artists	0007
Universal	0153, 0191
Viewstar	0063
Zenith	0000, 0525
Zentek	0400

Satellite or DBS Receivers:

AlphaStar	0772
Chaparral	0216
Echostar	0775
Expressvu	0775
General Instrument	0627, 0361, 0869
HTS	0775
Hitachi	0819
Hughes Net. Sys.	0749
JVC	0775
Jerrold	0627, 0361
Magnavox	0724, 0722
Memorex	0724
Next Level	0869
Panasonic	0701
Philips	0724, 0722
Primestar	0627, 0361
RCA	0566, 0143, 0392, 0855
Radio Shack	0869
Realistic	0052
Sony	0639
Star Choice	0869
Toshiba	0790
Uniden	0724, 0722, 0052
Zenith	0856

CD Players:

Aiwa	0157, 0124
Burmester	0420
California Audio Lab	0029
Carver	0157, 0179, 0437
DKK	0000
Denon	0003, 0873
Emerson	0305
Fisher	0179, 0174
Garrard	0420, 0393
Genexxa	0032, 0305
Harman/Kardon	0157, 0173
Hitachi	0032
JVC	0072
Kenwood	0028, 0037, 0190, 0681, 0826
Krell	0157
LXI	0305
Linn	0157
MCS	0029
MTC	0420
Magnavox	0157, 0305
Marantz	0029, 0157, 0180
Mission	0157
NSM	0157
Nikko	0174
Onkyo	0101, 0868
Optimus	0000, 0032, 0179, 0305, 0037, 0420, 0145, 0468, 0437
Panasonic	0029, 0303
Parasound	0420
Philips	0157, 0626
Pioneer	0032, 0305, 0468, 0244
Proton	0157
QED	0157
Quasar	0029
RCA	0179, 0305, 0053, 0764
Realistic	0179, 0420, 0180
Rotel	0157, 0420
SAE	0157
Sansui	0157, 0305
Sanyo	0179

Scott	0305
Sears	0305
Sharp	0037, 0180, 0861
Sherwood	0180
Sony	0000, 0185, 0490
Soundesign	0145
Tascam	0420
Teac	0420, 0393, 0174, 0180
Technics	0029, 0303
Victor	0072
Wards	0157, 0053
Yamaha	0036, 0187
Yorx	0461

DVD Players:

Harman/Kardon	0582
JVC	0558
Kenwood	0534
Magnavox	0503
Mitsubishi	0521
Onkyo	0503
Panasonic	0490
Philips	0503, 0539
Pioneer	0525, 0571
Proscan	0522
RCA	0522
Samsung	0573
Sony	0533
Technics	0490
Theta Digital	0571
Toshiba	0503
Yamaha	0490, 0545
Zenith	0503, 0591

LD Players:

Denon	0059
Mitsubishi	0059
NAD	0059
Pioneer	0059
Sony	0193, 0201

Cassette Decks:

Aiwa	0029, 0197
Carver	0029
Denon	0076
Harman/Kardon	0182, 0029
JVC	0244, 0273
Kenwood	0070
Magnavox	0029
Marantz	0029
Onkyo	0135, 0282
Optimus	0027, 0220
Panasonic	0229
Philips	0029
Pioneer	0027, 0220, 0099
Sansui	0029
Sony	0243, 0170, 0291
Technics	0229
Victor	0273
Wards	0027
Yamaha	0097, 0094

Stereo Tuners or Receivers:

ADC	0531
Adcom	0616
Aiwa	0158, 0189, 0121, 0405
Akai	0224
Capetronic	0531
Carver	0189, 0008, 0042, 0360
Casio	0195
Clarinette	0195
Curtis Mathes	0080
Denon	0004
Emerson	0424
Fisher	0042, 0219, 0360
Garrard	0463, 0424
Harman/Kardon	0110, 0189, 0891
JBL	0110
JVC	0074
Kenwood	0027, 0186, 0042, 0077
Koss	0424
LXI	0181
Linn	0189

Lloyd's	0195
MCS	0039, 0346
Magnavox	0531, 0189, 0195, 0391
Marantz	0039, 0189
Modulaire	0195
NAD	0320
Nakamichi	0097, 0347
Onkyo	0135
Optimus	0531, 0670, 0186, 0042, 0177, 0181, 0219, 0738, 0801, 1023
Panasonic	0039, 0309
Penney	0195
Philips	0189, 0391
Pioneer	0531, 0014, 0150, 0630, 0080, 1023
Quasar	0039
RCA	0531, 0054, 0346, 0360, 0530
Realistic	0195, 0163, 0181
Sansui	0189, 0346
Sanyo	0219, 0801
Scott	0163, 0322
Sharp	0186
Sherwood	0491, 0502
Sony	0158, 0168, 0474
Soundesign	0670
Teac	0463, 0163
Technics	0039, 0309, 0208
Victor	0074
Wards	0158, 0014, 0189, 0080, 0054
Yamaha	0176, 0186
Yorx	0195
Zenith	0857

Stereo Amplifiers:

Aiwa	0406
Carver	0269
Curtis Mathes	0300
Denon	0160
Harman/Kardon	0892
JVC	0331
Linn	0269
Magnavox	0269
Marantz	0269
Panasonic	0308
Philips	0269, 0892
Pioneer	0013, 0300
Sony	0220, 0689
Technics	0308
Victor	0331
Wards	0013
Yamaha	0354

Home Automation:

GE	0240
Lutron	0597
One For All	0167
Radio Shack	0240
Security System	0167
Universal X10	0167
X10	0167

DBS Audio Services:

Aiwa	0010, 0159, 0404
Fisher	0052
Harman/Kardon	0477
JBL	0477
JVC	0073
Jerrold	0459, 0520
RCA	0056
Scientific Atlanta	0460
Sony	0010, 0159
Starcom	0459

Video Accessories:

Archer	0160
GC Electronics	0160
Jebsee	0160
Rabbit	0081
Radio Shack	0160
TeleCaption	0171

SPECIFICATIONS

ANALOG AUDIO SECTION

Input Impedance . . . . 20 kΩ

Output Impedance
      Main . . . . 300 Ω (RCA), 600 Ω (XLR)
      Zone2/3 & Record . . . . 51 Ω

Rated Input . . . . 2.0 Vrms

Maximum Input
      6-Channel S/E . . . . 3.0 Vrms
      All Others . . . . 5.3 Vrms

Rated Output (100 kΩ load) . . . . 2.0 Vrms

Minimum Load . . . . 5 kΩ

Maximum Output
      RCA. . . . . 6.3 Vrms
      XLR . . . . 12.6 Vrms

Headphone Output. . . . . 100 mW into 32 Ω at 0.2% THD+N

Volume Control Range
      Main . . . . -95.5 to +31.5 dB in 0.5 dB increments
      Zone2/3 and Headphone. . . . . -70.0 to +10.0 dB in 1.25 dB increments

Channel Separation (at 1 kHz) . . . . 82 dB

Crosstalk Between Inputs (at 1 kHz). . . . . 86 dB

XLR Pin Configuration . . . . Pin 1: Ground, Pin 2: Positive, Pin 3: Negative

DIGITAL AUDIO SECTION

Analog to Digital Converters. . . . . AKM AK5383

Processor . . . . Motorola 56367 at 150 MHz

Digital to Analog Converters. . . . . AKM AK4382

Crossover
      High-Pass Slope (Small Speaker Setting) . . . . 12 dB/octave (2nd order)
      Low-Pass Slope (Subwoofer) . . . . 24 dB/octave (4th order)
      Frequency (Adjustable) . . . . 25 to 160 Hz in 5 Hz increments

Tone Control
      Filter Response Type . . . . Shelf
      Bass Turnover Frequency . . . . 200 Hz
      Treble Turnover Frequency . . . . 2 kHz
      Range . . . . ±12 dB

All digital audio inputs and output are to S/PDIF electrical (75 Ω, 0.5 Vp-p), S/PDIF optical (Toslink), or AES / EBU (110 Ω, 5 Vp-p) standards.

MAIN Path (RCA & XLR output)

Frequency Response and **Bandwidth**
6-Ch and 2-Ch BAL Direct Inputs . . . . 10 Hz to 20 kHz (+0, -0.2 dB), 1 Hz to 130 kHz (+0, -3 dB)
2-Ch S/E Direct Inputs . . . . 10 Hz to 20 kHz (+0, -0.2 dB), 1 Hz to 120 kHz (+0, -3 dB)
Analog-DSP Inputs at 24/96 . . . . 10 Hz to 20 kHz (+0, -0.3 dB), 2 Hz to 37 kHz (+0, -3 dB)
Digital Inputs at 24/96 . . . . 10 Hz to 20 kHz (+0, -0.2 dB), 1 Hz to 39 kHz (+0, -3 dB)

THD+N (at Rated Input & Output)
6-Ch S/E Direct Input. . . . . 0.003% (80 kHz BW)
2-Ch BAL Direct Input . . . . 0.004% (80 kHz BW)
2-Ch S/E Direct Inputs. . . . . 0.006% (80 kHz BW)
Analog-DSP Inputs at 24/48 . . . . 0.006% (AES17 Filter)
Digital Inputs at 24/48 . . . . 0.004% (AES17 Filter)

IMD (CCIF at 15 kHz & 16 kHz)
6-Ch S/E Direct Input. 0.001%
2-Ch BAL Direct Input 0.002%
2-Ch S/E Direct Input. 0.003%
Analog-DSP Inputs at 24/48 . . . . 0.003%
Digital Inputs at 24/48 . . . . 0.001%

S/N Ratio (ref. 2.0 Vrms, IEC-A Filter)
6-Ch S/E Direct Input. . . . . 107 dB
2-Ch Direct Inputs . . . . 106 dB
Analog-DSP Inputs at 24/48 . . . . 100 dB
Digital Inputs at 24/96 . . . . 104 dB

ZONE2 and **ZONE3** Paths

Frequency Response and **Bandwidth** . . . . 20 Hz to 20 kHz (+0, -0.1 dB), 3 Hz to 140 kHz (+0, -3 dB)

THD+N (at Rated Input & Output) . . . . 0.06% (80 kHz BW)

IMD (CCIF at 15 kHz & 16 kHz). 0.06%

S/N Ratio (ref. 2.0 Vrms, IEC-A Filter) . . . . 97 dB

FM TUNER

Sensitivity
50 dB S/N . . . . 13 dBµ typ., 25 dBµ max.
IHF. . . . . 10 dBµ typ., 20 dBµ max.

S/N Ratio
Mono . . . . 75 dB typ., 65 dB min.
Stereo. . . . . 69 dB typ., 60 dB min.

Distortion
Mono . . . . 0.2% typ., 1.0% max.
Stereo. . . . . 0.3% typ., 1.5% max.

Stereo Separation . . . . 40 dB typ., 25 dB min.

Adjacent Channel Selectivity (±400 kHz) . . . . 70 dB typ., 60 dB min.

Frequency Response . . . . 25 Hz to 15 kHz ±1 dB

AM TUNER

Sensitivity (20 dB S/N) . . . . 49 dBµ typ., 56 dBµ max.

S/N Ratio . . . . 50 dB typ., 43 dB min.

Distortion . . . . 0.7% typ., 2.0% max.

One Signal Selectivity (±10 kHz) . . . . 24 dB typ., 18 dB min.

VIDEO

Bandwidth of complete path from input to output
      Composite & S-Video . . . . 70 MHz
      Component: Y . . . . 110 MHz
               Pr/Cr . . . . 90 MHz
               Pb/Cb . . . . 80 MHz

All video inputs and outputs are 75 Ω, 1.5 Vp-p. Component video switching is suitable for up to 1080p.

CONTROL

Infra Red
      Carrier Frequency . . . . 38 kHz
      Max. 12V Supply Current . . . . 150 mA
      Max. Emitter Current . . . . 100 mA per output

RS-232 Interface
      Connection . . . . DB-9F, straight-wired
      Pinout (AVM 20 side) . . . . Pin 2: Tx, Pin 3: Rx, Pin 5: Ground
      Baud rate . . . . 1200 to 115200
      Configuration . . . . 8 data bits, 1 stop bit, no parity bits, flow control (RTS, CTS, NONE)

Trigger Outputs
      Polarity . . . . tip positive, sleeve negative
      Max. Current at 12 VDC . . . . 50 mA (Triggers 1, 2), 200 mA (Trigger 3)
      Sequential Delay . . . . 250 ms

POWER REQUIREMENTS

Supply Voltage . . . . 105 to 130 V, 60 Hz

Power Consumption . . . . Maximum 120 W

Fuse Ratings (Fuses are internal)
      Main Power Supply . . . . 1.0 A slow-blow 5x20mm
      Standby Power Supply . . . . 315 mA slow-blow 5x20mm

DIMENSIONS

Height . . . . 5 $^7/_8$ inches (14.9 cm) including feet

Width . . . . 17 $^1/_4$ inches (43.8 cm)

Depth . . . . 14 $^1/_4$ inches (36.2 cm)

Weight (unpacked) . . . . 27 lb (12.2 kg)

Audio measurements were performed with an Audio Precision System Two. Specifications and features are subject to change without notice as design improvements are incorporated.

WARRANTY

CANADA & USA

Anthem Electronics warrants to the original purchaser that each Anthem AVM 20 is free from defects in workmanship and materials, during normal use and service, for a period of five (5) years from the date of sale (one year for the remote control). This warranty is not transferable unless the product is traded-in with an Authorized Anthem Dealer. During the warranty period, Anthem Electronics will repair or replace any defective components free of charge.

Warranty is void if the Anthem product is not purchased from an Authorized Anthem Dealer, if the serial number has been removed, altered, or defaced, if the product has been operated or handled other than in accordance with the instructions in its Operating Manual or otherwise abused, misused, damaged by accident or while in transport, tampered with, modified, or repaired by anyone other than Anthem Electronics or an authorized Anthem Electronics service center. If inspection by Anthem Electronics discloses that the repair required is not covered by this warranty, regular repair charges shall apply.

Display products sold by an Authorized Anthem Dealer are covered under the same warranty terms, except that the warranty period commences from the date of the dealer invoice, not the purchaser's invoice, and cosmetic flaws, if there are any, are excluded.

If a problem or defect is discovered in your Anthem product, please contact your Authorized Anthem Dealer. It is the Dealer's responsibility to determine the nature of the problem and arrange for the appropriate replacement parts, or the return of the product to Anthem Electronics.

A Return Authorization (RA) number must be obtained from Anthem Technical Support before any product can be returned to Anthem Electronics for any reason. The RA Number must be clearly visible on the outside of the shipping carton for Anthem Electronics to accept the return. Product shipped to Anthem Electronics without a RA Number will be refused and returned to the sender, freight collect. Product shipped to Anthem Electronics for repair must have shipping and insurance prepaid by the sender, be packaged in the original carton and packing material, and should be accompanied by a written description of the defect. Anthem Electronics will accept no responsibility for any damage occurring to a product that is shipped in any type of carton and packing material other than the original carton and packing material.

To receive service under warranty, an accompanying copy of the original sales receipt is required. Product repaired under warranty will be returned with shipping and insurance prepaid by Anthem Electronics (within Canada and USA only). All other repairs are subject to charges for labor, parts, return shipping, and insurance.

Disclaimer of Liability

Under no circumstances does Anthem Electronics assume liability or responsibility for injury or damages sustained in the use or operation of Anthem products, or for damages to any other connected products.

In no event shall Anthem Electronics, its agents, representatives, or employees, be responsible for any incidental or consequential damages. Some jurisdictions do not allow limitations of incidental or consequential damages, so this exclusion may not apply to you.

Anthem Electronics reserves the right to make design changes or improvements to products without any obligation to revise prior versions. All specifications are subject to change without notice.

On the expiration of the warranty period all liability of Anthem Electronics in connection with the product shall terminate.

This warranty constitutes the only warranty applicable to products sold by Anthem Electronics. No other warranty or condition, statutory or otherwise, expressed or implied, shall be imposed upon Anthem Electronics, nor shall any representation made by any person, including a representation by a representative or agent of Anthem Electronics, be effective to extend the warranty coverage provided herein.

**Frequently Asked Question: Is there a warranty on trade-ins?**

The balance of the warranty can be transferred on used product only if the product is traded-in at an Authorized Anthem Dealer, who may resell the product with the remaining warranty if it is cosmetically acceptable, in perfect working condition, and has not been internally or externally altered in any way.

INTERNATIONAL

Outside of Canada and USA, warranty coverage terms are set and maintained by the Authorized Anthem Distributor, not Anthem Electronics. Exact terms and conditions may vary. Anthem Electronics will provide warranty replacement parts to the original purchaser of the product, via the distributor, for a period of five (5) years, via surface mail. Additional courier freight charges will apply.

THE BIG PICTURE FRONT PANEL

ANTHEM AVM 20

DOLBY DIGITAL
DTS
THX
STEREO
DOLBY PRO LOGIC II

DOLBY DIGITAL PRO LOGIC
DTS ES
ANTHEM MUSIC SURROUND
THX SURROUND EX
LUCASFILM THX ULTRA 2

PATH
MAIN   ZONE 2   ZONE 3   RECORD

SOURCE
CD   2-Ch BAL   6-Ch S/E   TAPE   FM•AM
DVD   TV   SAT   VCR   AUX

FRONTS•○

CENTER
SUB•LFE
SURR•REARS

POWER
MAIN   ZONE 2   ZONE 3

(Back)   (Navigate)   (Select)
1   2   3   4   5   6   ST•HIB•M   ◄ SEEK ►   TUNE
▲   ▼   ►   ◄

(Setup)
MUTE
STATUS
BALANCE
DISPLAY

SURROUND
MODE   DYNAMICS   THX

TONE
BASS   TREBLE   BYPASS

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