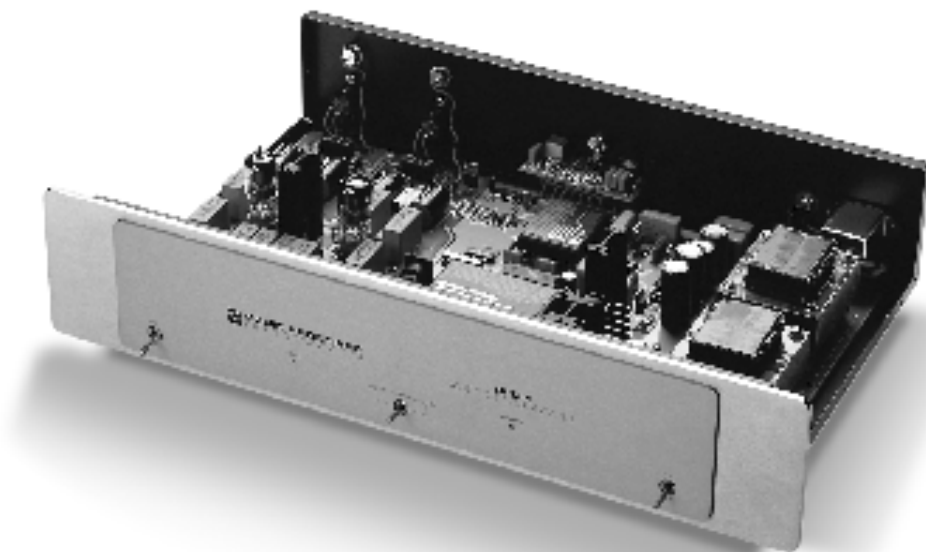
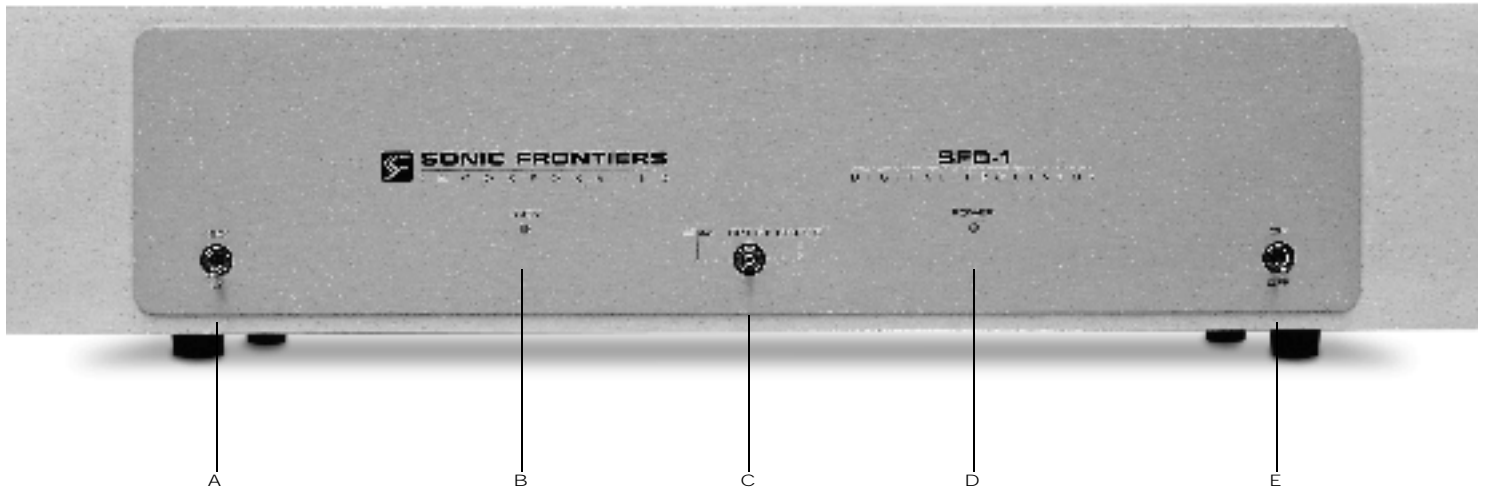


OWNER'S MANUAL

THE SONIC FRONTIERS SFD-1 DIGITAL PROCESSOR





#### CONTROL FUNCTIONS AND CONNECTIONS

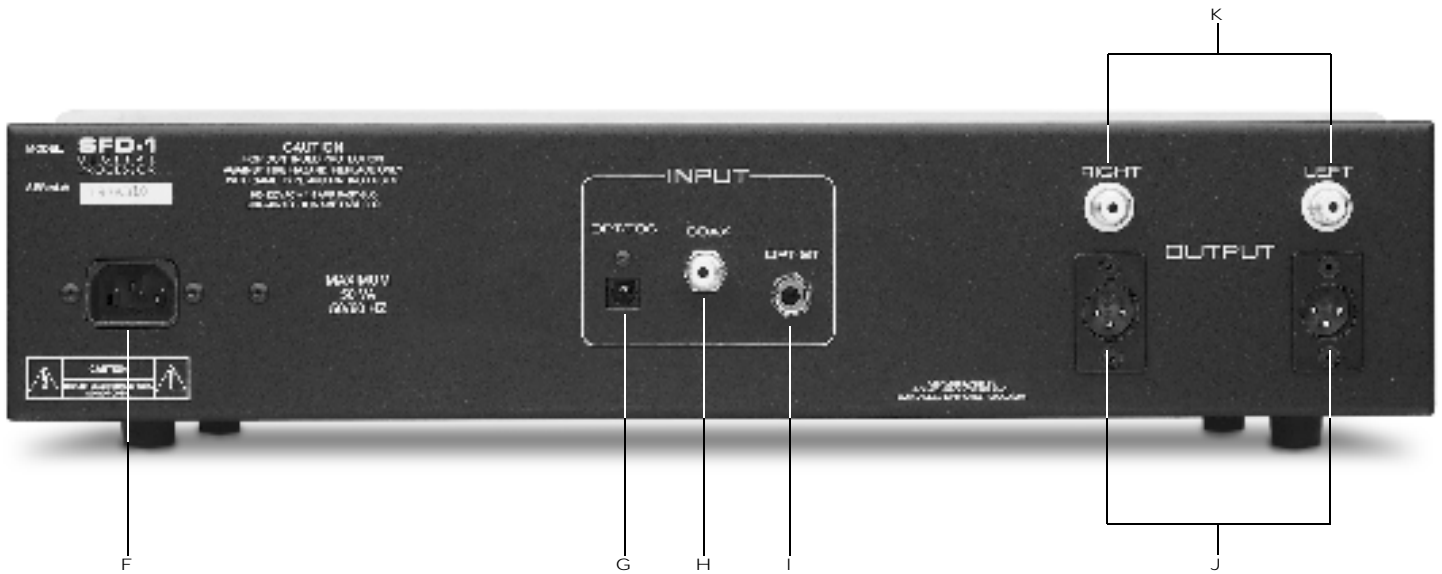
**A - Phase Control Switch** - This toggle switch allows the user to invert the system phasing easily and safely. When the switch is in the 0° position the SFD-1 will put out a normal or non-inverted signal in relation to the signal being received from the source. When the switch is in the 180° position the SFD-1 will put out an inverted version of the signal as compared to that being received from the source. This feature offers a convenient method of correcting source material which was recorded "out of absolute phase" or to counteract for a component in your system such as a preamplifier, power amplifier or signal connection which inverts phase.

**B - Signal Locking Indicator LED** - This LED will light when an operational digital source is selected.  
**NOTE:** Depending on the source or transport being used in conjunction with the SFD-1, it may be necessary to have the source unit in the "play" mode and the SFD-1 receiving the digital transmission before the LED will light.

**C - Input Selector Switch** - This 3 position toggle switch selects between the three digital inputs located on the back of the SFD-1: Toslink (Plastic Fibre) Optical, RCA Coaxial Cable and ST (Glass Fibre) Optical. A connection to all 3 inputs may be made from 3 separate sources. The Signal Locking Indicator LED (B) will light when the source is activated in conjunction with the input chosen by this switch.

**D - Power Indicator LED** - This LED will light when the Power Switch (E) is in the ON position and the SFD-1 is receiving power.

**E - Power Switch** - This toggle switch, when switched to the ON position, allows the SFD-1 to receive power, rendering the SFD-1 operational as indicated by the Power Indicator LED (D). When the switch is in the OFF position the SFD-1 is not receiving power and is not operational.



F - Detachable Power Cord Socket - Plug the Detachable Power Cord into this socket (see Figure 1). The SFD-1 is factory set for the correct operating voltage for the area in which it is sold (see shipping box for voltage setting). If a different operating voltage is required, please contact an authorized Sonic Frontiers dealer, distributor or the factory directly.

G - Toslink (Plastic Fibre) Optical Input - This input will accept a digital connection from a digital source's Toslink (Plastic Fibre) Optical digital output (see Figure 3).

H - RCA Coaxial Cable Input - This input will accept a digital connection from a digital source's RCA - S/PDIF - Coaxial digital output (see Figure 3). The RCA - S/PDIF - Coaxial cable impedance should be 75 ohms.

I - ST (Glass Fibre) Optical Input - This input will accept a digital connection from a digital source's ST (Glass Fibre) Optical digital output (see Figure 3). This connection type is considered best for optimum performance and sound quality; if your source unit has this type of digital output we recommend it's use.

J - Left and Right Channel Balanced XLR Audio Output Connectors - These are balanced audio outputs and should be used when connecting the SFD-1 to the balanced audio inputs of a line level preamplifier, control amplifier, integrated amplifier or receiver, if these units are so equipped (see Figure 4). (Left channel output of the SFD-1 connects to the left channel input of control unit and right channel output of the SFD-1 to the right channel input of control unit.)

K - Left and Right Channel RCA Single-Ended Audio Output Connectors - If the balanced inputs are not applicable for use, the RCA single-ended (unbalanced) audio outputs should be used when connecting the SFD-1 to the RCA single-ended audio inputs of a line level preamplifier, control amplifier, integrated amplifier or receiver. (Left channel output of the SFD-1 connects to the left channel input of control unit and right channel output of the SFD-1 to the right channel input of control unit.)

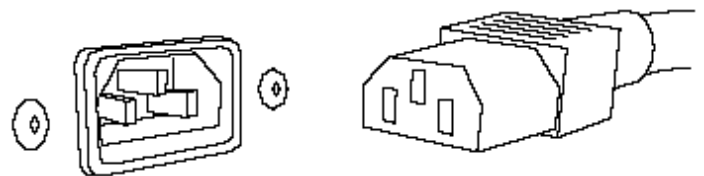


Figure 1 - Align socket pins to corresponding holes and push together firmly.

#### INSERTION OF THE TUBES

The SFD-1 comes with two 6922 (6DJ8-type) tubes, individually boxed and bagged along with a cotton glove, screwdriver, and screws for fastening the SFD-1 cover. If desired, replacement of these tubes may be done to suit the listener's preference. The following tube types will work under the same technical parameters as the 6922 and require no circuitry modification to function:

- 7308/E188CC • 6DJ8/ECC88 • E88CC

Please read and follow these instructions carefully for initial tube insertion or tube replacement.

1. Be sure that the AC DETACHABLE POWER CORD IS DISCONNECTED from the SFD-1 before removing the chassis cover.
2. Using a Phillips screwdriver, remove the cover of the SFD-1. For convenience, only two of the screws are fastened.
3. When handling the tubes, it is recommended that the cotton gloves provided be worn to prevent skin oils from depositing on the glass surface and possibly causing the tube to become prematurely "gassy", thereby shortening the tube's useful operating life.
4. Take a tube and inspect the pins, noting the larger space between two of the pins. This space will align with the same larger space between two of the pin holes on the socket. Insert the tubes into the tube sockets, making sure all pins and pin holes are aligned (see Figure 2). Do not force the tube into the socket. "Rock" the tube gently while pushing slowly until the tube is firmly seated.
5. Replace the cover and fasten it with the screws provided. The SFD-1 is now ready for operation.

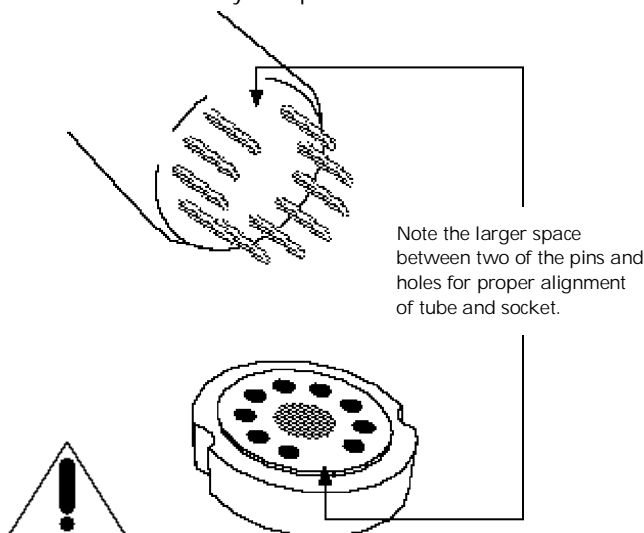


Figure 2 - Tube pin alignment with the socket.

#### WARNING

DISCONNECT the AC Detachable Power Cord from the SFD-1 before removing the chassis cover.

#### OPERATION OF THE SFD-1 DIGITAL PROCESSOR

Before plugging in the SFD-1, check to see that the unit is configured for the correct AC line voltage for country of use. The operating AC line voltage is indicated on the side of the shipping box. If the SFD-1 Digital Processor is set incorrectly for the country in which it is to be operated, contact the dealer or distributor in your area. If the unit is configured properly continue with operation.

Connect the detachable power cord to the SFD-1 chassis (see Figure 1) and plug your SFD-1 into the AC power source.

Up to three digital sources or cables may be connected to the appropriate input connectors on the rear panel (B,C,and D) using a Toslink (Plastic Fibre) cable, an RCA Coaxial cable and an ST (Glass Fibre) cable (see Figure 3).

Connect the left and right channel balanced XLR audio outputs (if the existing amplification system is balanced) or the left and right channel RCA coaxial (single-ended) into the corresponding left and right channel line level audio inputs of the system's preamplifier, control amplifier, integrated amplifier or receiver (see Figure 4).

The SFD-1 Digital Processor is now ready for operation. Power the unit by placing the Power Switch (E) in the ON position. As soon as the SFD-1 is plugged in and turned ON, the front panel

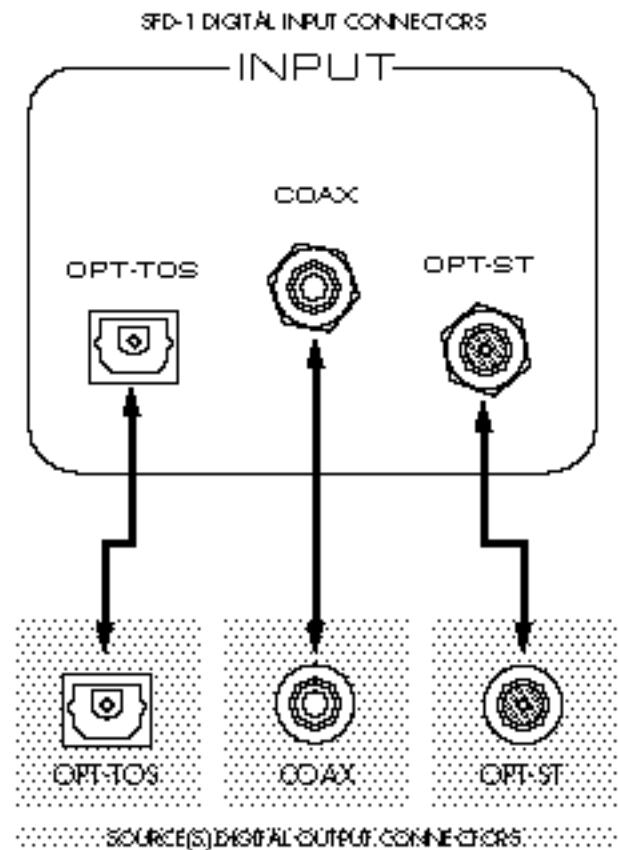


Figure 3- The digital source(s) output connections to the SFD-1 digital inputs. Up to three digital sources may be connected to the SFD-1 Digital Processor via Optical-Toslink, Coaxial RCA and Optical-ST interconnect.

Power Indicator LED (D) will flash on and off for approximately 45 seconds. During this time, the signal outputs are muted while the two 6922 tubes are warming up and stabilizing. As soon as the Power Indicator LED (D) stops flashing and lights green, the SFD-1 is ready to play. Turn on the digital source and the amplification system and select your source via the Input Signal Selector Switch (C). The Signal Locking Indicator LED (B) should light green when the powered digital source is selected.

Put the digital source in "play" mode. You are now ready to sit back, listen and enjoy.

At this point, if all is operating correctly, one may wish to experiment with the phase feature. Move the Phase Control Switch (A) from the 0° to the 180° position (or vice versa) to find the most desirable and pleasurable effect and/or correction to the particular recording.

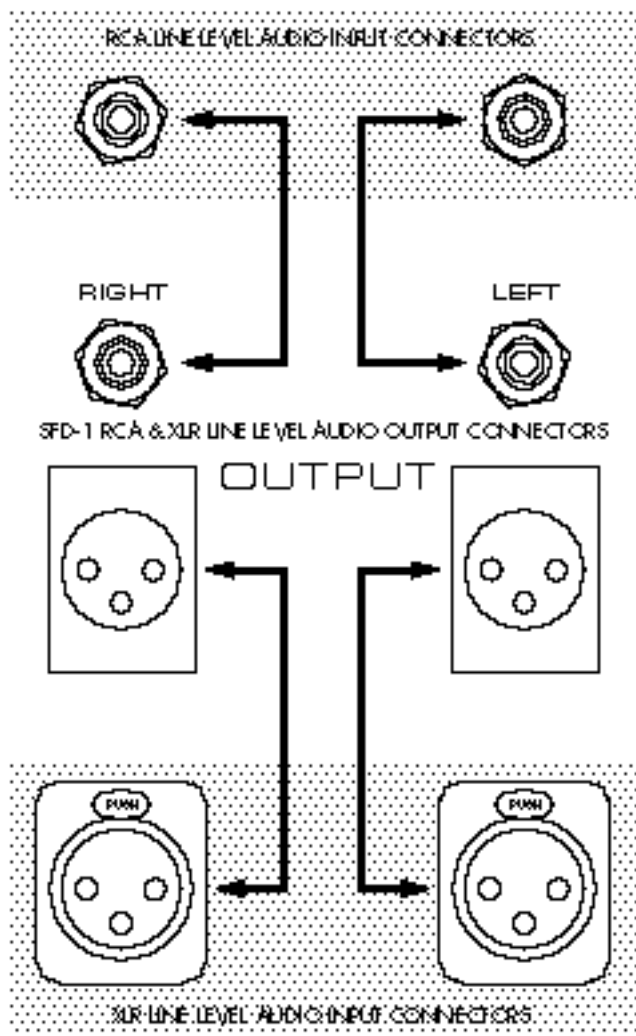


Figure 4- The SFD-1 XLR balanced and RCA single-ended audio output connections to a line level amplification device - right channel to right channel and left channel to left channel. Both the XLR and RCA outputs connections can be hooked up in unison, although this setup would be system dependent.

**TROUBLESHOOTING**

If at any time the SFD-1 Digital Processor fails to work properly, consult this checklist:

1. Check that the AC Detachable Power Cord is plugged into the SFD-1 Detachable Power Cord Socket (F) and is connected to a live source of AC power. For instance, if using a power bar, check that the bar is turned on.
2. Ensure that the digital source is connected to the appropriate digital input (B,C or D) as selected by the Input Signal Selector Switch (C).
3. DISCONNECT THE AC POWER CORD from the SFD-1, remove the chassis cover and check that:
  - A "fast-blo" fuse, with a rating of 1.5 Amp/250 V (.075 Amp/250 V for European and Asian versions), is installed in the cylindrical tube next to the AC power socket (Figure 5).
  - The AC power fuse is intact and has not blown. If the fuse has blown the thin metal conductor will have melted and the glass may appear "smoked". If the fuse has blown, replace with a fuse of the same rating (1.5 Amp/250V fast-blo for 100 to 120 volt countries and 0.75 Amps/250V fast-blo for 200 to 240 volt countries). See Figure 5 for location and removal.

NOTE: Under no circumstances should you replace the AC power fuse with one of a higher current rating! Doing so may cause further damage to the SFD-1 and will also void the warranty. In addition, your continued protection from risk of fire or shock would be seriously compromised.
4. DISCONNECT THE AC POWER CORD, remove cover and ensure the 6922 tubes (or equivalent replacements) are plugged firmly into their sockets as described in "INSERTION OF THE TUBES".
5. Be sure the rest of the system is functioning properly (i.e. digital source, power amplifiers, cables and connections, etc.).
6. Check that both the front panel Power Indicator LED (D) and the Signal Locking Indicator LED (B) are lighted (glowing light green). If at any time the Signal Locking Indicator LED (B) fails to light, check to see that a CD is properly loaded in the transport or CD player and that the unit is in the "play" mode. If all of the above troubleshooting steps have been followed (including step 2) and the lights are not lighted (remain dark green), contact your dealer or distributor for assistance.

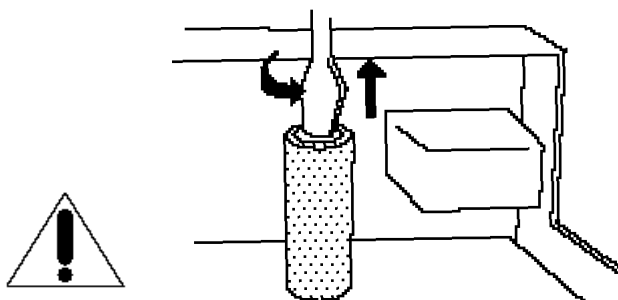


Figure 5 - Fuse location, next to AC power socket.

**WARNING**

DISCONNECT the AC Detachable Power Cord from the SFD-1 before removing the chassis cover.

#### SFD-1 PLACEMENT FOR PROPER VENTILATION

Allow at least 6" (15 cm) of clear space above the SFD-1 chassis for proper ventilation, making sure the air vent slots in the chassis cover remain unobstructed.

#### SAFETY INSTRUCTIONS

1. Ventilation - Although your SFD-1 Digital Processor generates only nominal heat in use, be sure that the ventilation slots in the top cover have at least 6" of unobstructed air space above them.
2. Water and Moisture - This product should not be used near water. To prevent fire or shock hazard, do not expose this product to rain or moisture.
3. Heat - This product should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances which produce heat.
4. Power Sources - This product should be connected to an AC power source of the proper rated voltage. The original shipping containers will stipulate the AC voltage this unit can operate with correctly.
5. Cleaning - A regular dusting with a soft, non-abrasive cloth will generally keep the finish of the faceplate and chassis looking like new. At no time should you allow any liquid to come in contact with the SFD-1 Digital Processor; it may run into the electronic circuitry and cause damage which will not be covered under your warranty.
6. Servicing - Do not open this product. No user serviceable parts inside. Refer servicing to an authorized service technician.
7. Non-Use Periods - The power cord of this product should be unplugged from the outlet when left unused for an extended period of time.
8. Do not remove the SFD-1 chassis cover while the unit is "on", or connected to an AC power source. Cover screws could fall through the ventilation slots and cause electrical damage to the SFD-1.

#### PACKING MATERIALS

We recommend that you retain all of the packing material and shipping boxes for your SFD-1 Digital Processor. They are custom designed to prevent shipping damage from occurring. Sonic Frontiers, Inc. will accept no responsibility for any damage occurring to an SFD-1 Digital Processor that is shipped in packing material other than the original Sonic Frontiers packing material.

#### DISCLAIMER OF LIABILITY

Under no circumstances does Sonic Frontiers, Inc. assume liability or responsibility for injury or damages sustained in the use or operation of this equipment or for damages to any other equipment connected to it.

Sonic Frontiers, Inc. reserves the right to make design changes or improvements without the obligation to revise prior versions. All specifications are subject to change without notice.

#### LIMITED FIVE YEAR WARRANTY

Sonic Frontiers, Inc. warrants to the purchaser that each SFD-1 Digital Processor is free of manufacturing defects for a period of five (5) years from the date of purchase. This five (5) year limited non-transferable warranty excludes all vacuum tubes, which we warrant for a period of twelve (12) months. To receive this warranty, the original purchaser must complete and mail to Sonic Frontiers, within thirty (30) days from the date of purchase, the enclosed Warranty Registration Card. Sonic Frontiers, Inc. will then validate the warranty to the original purchaser. This warranty is subject to the following conditions and limitations:

1. Warranty applies only to the original purchaser.
2. This warranty is void and inapplicable if the product has been handled other than in accordance with the instructions in this Owner's Manual, abused or misused, damaged by accident or neglect or in being transported, or the defect is due to the product being tampered with, modified or repaired by anyone other than Sonic Frontiers, Inc. or an authorized Sonic Frontiers repair depot.
3. Warranty does not cover normal maintenance.
4. Sonic Frontiers, Inc. shall not be responsible in any way for consequential or indirect damages or liabilities resulting from the use and operation of the product covered herein or resulting from any breach of this warranty or any implied warranty relating to said product.

During this period, Sonic Frontiers, Inc. will repair or replace any defective components free of charge. A Return Authorization Number (RA Number) is required before any product is returned to our factory for any reason. This number must be visible on the exterior of the shipping container(s) for Sonic Frontiers to accept the return.

Units shipped to us without a Return Authorization Number or without a visible RA Number on the exterior of the shipping container(s) will be returned to the sender, freight collect.

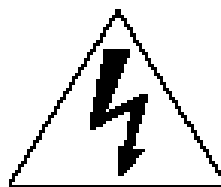
Units to be repaired by Sonic Frontiers, Inc. must be sent shipping and insurance prepaid by the original purchaser in the original packing material. A returned product should be accompanied by a written description of the defect. Repaired units will be returned by Sonic Frontiers, Inc. shipping and insurance prepaid.

All other warranties or conditions either written or implied are void.

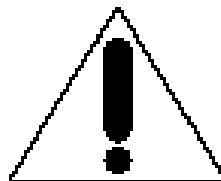
Note: In foreign markets (anywhere outside of Canada and the USA), the warranty is supplied by the authorized International Distributor. Exact terms and conditions may vary.

SFD-1 TECHNICAL SPECIFICATIONS

Input Receiver	UltraAnalog AES20 AES/EBU ultra-low jitter Input Receiver
Digital Filter	NPC 5803 (8-times oversampling)
D/A Converter	UltraAnalog D20400A (1 Dual)
Low Pass Analog Filter	Proprietary passive configuration
Frequency Response	5 Hz to 20 kHz $\pm$ 0.2 dB
Intrinsic Jitter	< 40 ps (picoseconds)
Jitter Rejection	From 1 kHz and above (6 dB/octave)
"A" weighted S/N Ratio	105 dB (Balanced)
Crosstalk	> 105 dB @ 1 kHz > 95 dB 20Hz to 20 kHz
THD + Noise	< 0.02% @ 1kHz < 0.30% 20Hz to 20kHz (balanced/single-ended)
Output Voltage	Approx. 2.2 Volts (single-ended) Approx. 4.4 Volts (balanced)
Output Stage	Fully balanced (for AC and DC parameters), high speed tube buffer
Digital Inputs	Coaxial (RCA), Optical (H-P ST-Type glass), Optical (Toslink)
Analog Outputs	1 pr. Single-ended RCA 1 pr. Balanced XLR
Tube Complement	2 - 6922 (E88CC)
Dimensions	19" Wide x 11" Deep x 4" High (48 cm x 28 cm x 10 cm)
Weight	19.8 lbs (9 kg) - unpacked
Warranty	5 years parts and labor 1 year on the tubes



This symbol is intended to alert the user to 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.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

We at Sonic Frontiers are sure that you will derive many years of listening pleasure with your new SFD-1 Digital Processor. This Owner's Manual contains important information regarding the operation and care of the SFD-1. Be sure to read this manual carefully and follow these instructions in order to keep it looking, operating and sounding its best.



BREAKING THE SOUND BARRIER

2790 Brighton Road, Oakville, Ontario, Canada L6H 5T4 Telephone: (905) 829-3838 Facsimile: (905) 829-3033  
Sonic Frontiers can be reached from 9:00 a.m. to 6:00 p.m., Eastern Standard Time (E.S.T.), or 24 hours a day by facsimile.