OFR-1 SCRUBBER™ SMPS RESERVOIR AND RIPPLE FILTER

The switching power supply (SMPS) is becoming universally accepted for almost all small power supply applications. There is however a number of modern high-efficiency audiophile class D audio applications in which these types of power supplies are asked to provide clean power with real low impedance. One of the main concerns for all amplifiers is the absence of noise on its power supply and impedance as close to zero as possible. The nature of the switching power supply is to provide the desired power well regulated but with virtual impedance and accompanying switching ripple. The amplifier wants a noise free low impedance power source and accessible current on demand for musical peaks. The OFR-1 is the accessory to fulfill the need for a musical power supply.

The OFR-1 provides in excess of .068F for over 25 joules of energy available when the music needs it. The OFR-1 utilizes two extremely low ESR capacitors for low frequency current demands and that required for dissipating the ripple energy. The RC filter network avoids a peaky response while effectively isolating the supply from the load. The modern class D topology uses feedback, which increases the Power Supply Rejection Ratio (PSRR) however this important function is compromised by as much as 20 db by the nature of the power supply ripple. With the OFR-1 as much as 20db of PSSR improvement can be achieved at the switching frequency resulting in a quieter background for the music while providing almost limitless dynamic surge current on demand. The OFR-1 also includes a ferrite sleeve at its output for bi-directional EMI filtering to prevent any RF noise exchange between the amplifier and the SMPS.

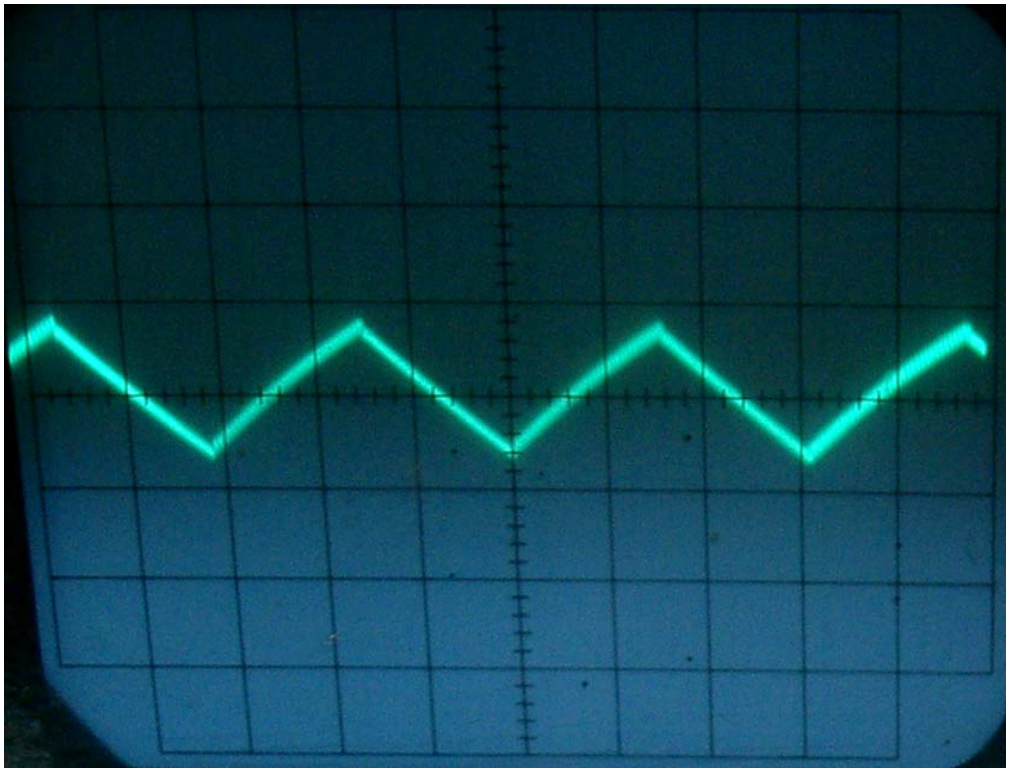
When used with the Millenia MG3 the total capacitance reservoir increases to over .070F with the smaller on board capacitance being located close to the power amplifier IC. A short low inductance 18” twisted pair cable of heavier 18-gauge wire outfitted with a ferrite filter reduces residual EMI to a much lower level and connects the amplifier to the OFR-1. The switching supply simply maintains the reservoir in real time isolating the switching noise in the process.

Although designed to enhance the incredible performance of the Millenia amplifier the OFR-1 Scrubber™ will improve the quality of all audio related applications utilizing small switching or linear supplies that require clean robust DC output. The input and output connections can use adapters for connectivity to other supplies below 24V DC. The input voltage must be regulated to no more than 24VDC for safe operation and + is center pin both at the input and the output. The OFR-1 is fuse protected at its output from instantly discharging the massive energy storage available.

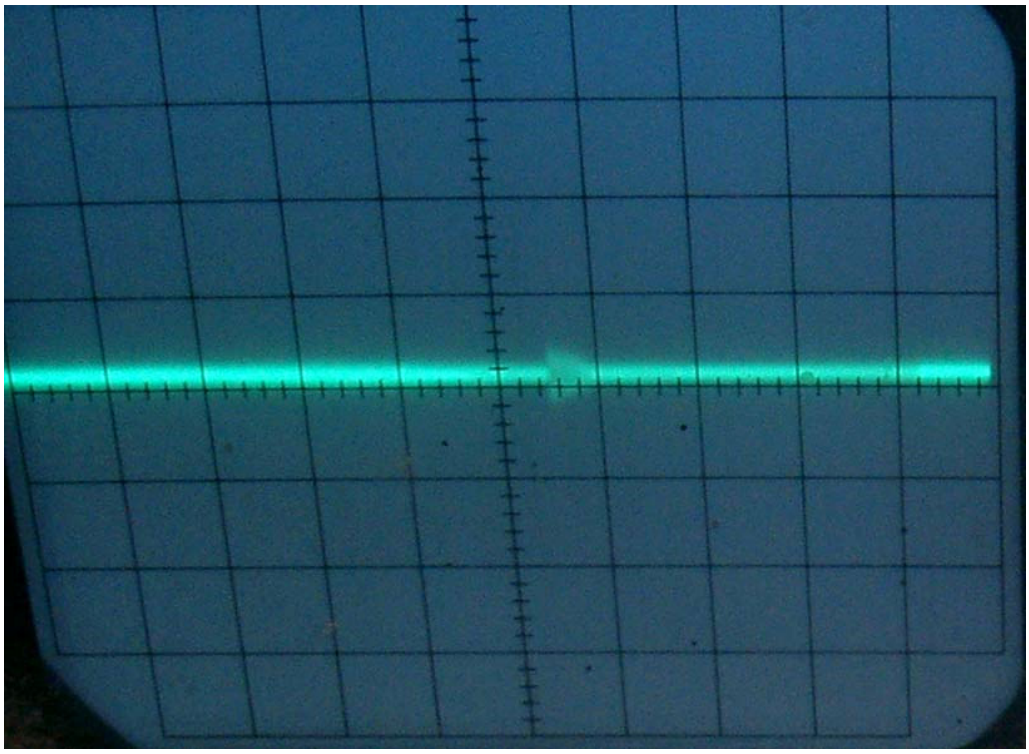
TBI OFR-1 SCRUBBER™ SMPS ENHANCER

SPECIFICATIONS

Description------	SMPS Ripple Filter and Power Storage Reservoir
Attenuation------	-10 ─ -20 db DC-300mHz
Impedance -----	.014Ω
Energy Storage-	.068F / 25j
Filter Type-------	RC single pole 3 element + bi-directional RF ferrite sleeve 14.2 x 28.5 EMI Ferrite Suppression Core At DC Output Cable Exit Short 18 Gauge Low Inductance Twisted Pair DC Output Cable
Connections----	Input - 5.5 x 2.1 / Output – 5.5mm x 2.1mm (positive on center)
Construction----	All Aluminum Black Powder Coated EMI Sealed Discrete Housing
Dimensions ----	5.236” D (Allow 7.5” for ferrite and output cable) x 2.308” W x 4.252” H
Weight ----------	1 lb
MSRP ----------	USD 200.00



24.57 VDC IN BEFORE SCRUBBING 5X AC INPUT (high level 200kHz Ripple)



24.56 VDC OUT AFTER SCRUBBING 20X AC INPUT (low level 30mHz burst)