Sugden Audio is pleased to introduce three new products which we are sure will further enhance the company's standing and reputation amongst discerning music lovers.

The company's main objective in developing the products has been musical performance coupled to a practical user interface, pride of possession and product longevity.

The market trends for new and fashionable technologies have not been ignored and the products have been developed to complement them and present their user with the very best euphonic experience.

The three products consist of:

**Sapphire Range**
- DAP800 High End Pre-Amplifier with the benefit of an added Digital Input Interface
- FBA 800 Floating Bridge Pure Class A Power Amplifier

**Masterclass Range**
- FPA-4 Pure Class A single ended Output Stage Power Amplifier

As with all Sugden products they are designed and manufactured by Sugden employees in our West Yorkshire premises. The use of ‘through hole’ as opposed to surface mount components, wherever possible, enhances product life, performance and reliability.

**Pre-amplifier Sapphire DAP 800**

The DAP 800 is an analogue pre-amplifier with a separate in built DAC facility. It has:

**Analog Inputs:**
- One pair of Balanced Inputs
- Four Pair of Phono / RCA Inputs
- One Pair of By-Pass Inputs Phono / RCA

**Digital Inputs:**
- One X USB type B
- Two X Toslink Optical SPDIF
- Three X Coaxial SPDIF

**Analog Outputs:**
- One pair of XLR Balanced Outputs
- One pair of Phono / RCA Tape outputs
- Two pair of Phono / RCA outputs

The Individual sections of the pre-amplifier i.e. analogue and digital, are self-contained stages having their own power supplies, voltage regulation and circuit board assemblies The analogue stage has a 50 watt torroidal transformer and the digital a 15 watt E core transformer. The digital facility power supplies are totally isolated from the analogue stage.
The pre-amplifier’s analogue stage incorporates a Sugden VCV circuit in its most developed advanced form. This circuit has a high impedance input section, current gain stage (without attenuation problems) which drives a folded cascode stage into a Class A output stage. The folded cascode circuit facilitates a wide bandwidth with maximum dynamics and low capacitive connectivity.

The tonal balance is irrespective of the output level and the sense of headroom, imaging and soundstage is to be believed.

The DAC facility to interface with digital products includes inputs for USB, optical and coaxial SPDIF signals. The actual DAC is a non-oversampling, digital filtering-less, DAC where the digital interface transceiver is a Wolfson Micro electronics device. The DAC also includes Post Conversion Filtering in the analogue output stage. The USB signal received is converted via a circuit including a Texas Instruments Universal IC whose SPDIF output signal is re clocked and de jittered by the Wolfson interface transceiver.

This DAC configuration has been adopted for Sugden’s digital processing after many hours of actual auditioning of a wide sample of DSPs. The auditory perception/musical performance in terms of dynamic balance, tonal balance, voice and emotion, are so much more satisfying and the company’s preference.

Note: before moving on to describe the two special power amplifiers FBA80 and FPA-4 we would express our belief in the sonic advantages of CLASS A operation.

**Power Amplifier Sapphire FBA 800**

The FBA 800 is a Floating Bridge power amplifier operating in Pure Class A output mode. Power output is set at 40 watts / channel, the unit’s torroidal transformer is rated at 350. The Amplifier has the input facilities of: balanced input or phono / asymmetric input, (both stereo pairs). Output is through a stereo pair of speaker binding posts.

Selected optional facilities are:-

**Input sensitivity**: this can be reduced in one step by -6dB. This allows the user to adjust the balance/matching of the Audio chain, i.e. Pre-Amp – Power Amp - Loudspeakers. The sensitivity is selected by push button, located on the front Panel.

**Balanced or Phono/RCA input**: is also exercised by a push button on the front panel.

The FBA 800 Power Amplifier is a Stereo Class A amplifier operating in the Bridged Mode with the output earth floating. Each channel consists of two amplifiers working as voltage amplifiers driving an output stage of bridged power transistors. The advantages are a low noise floor, better power output relative to the voltage rails (x2) and with the fixed current of the Class A mode, low output impedance and better load tolerance. The amplifier has been designed for modern high efficiency loudspeakers.
The power amplifier is D.C. coupled, with a servo lock, ensuring excellent low frequency detail. For safety purposes the amplifier includes a D.C. protection circuit. This circuit is statically switched using extremely low impedance Mosfet switching devices. This circuit also soft switches the power amplifier on and off.

The power supply is a low impedance design with a single custom made bi-filar wound transformer, with four separate windings. The main smoothing capacitors for the output stage are specially developed for professional audio applications with excellent ripple characteristics and long life. The four power transistors per channel in the output stages are multi emitter devices with an output capability of 26 amps per device.

In the balanced mode the FBA800 operates in the full balanced mode from the input of the unit to the output. This is accomplished by using the two amplifiers per channel in the balanced mode.

For people who want to experience all the emotions of music this amplifier is set completely in Class A. No compromise has been taken with the build quality of its electronic circuitry, electronic components, or case work. It includes gold plated circuit boards, and high quality internal silver wiring all designed to give long life and the ultimate musical performance.

It is always exciting when a new project reaches the performance stage and the FBA 800 amplifier through its development has continued to astound and excite through thousands of hours of tuning and development. The finished product is a precious link to simply more music.

**FPA 04 Masterclass Power Amplifier**

The FPA 04 power amplifier is the latest member of the Sugden Masterclass family. A Pure Class A power amplifier of 30 watts per channel with a Pure Class A output stage. This output stage is of the classic Sugden single ended design which has given musical satisfaction to thousands of discerning music lovers over many years.

The facilities on the amplifier include, Phono (RCA / asymmetrical) stereo pair and a pair of stereo balanced input XLR connectors. Output is via two stereo pair of speaker binding posts with facilities for spade, bare wire or speaker jack connectors.

The balanced Input facility is connected to left and right virtual transformer circuits to convert the signals to single ended. This takes advantage of the characteristics of the balanced input which together with the superb performance of the unbalanced circuitry gives the potential for simply more music.

The input stage of the amplifier (which is a new design) has been developed to enhance the overall performance and further exploit the potential of the Class A output stage. It has the characteristics of a very good valve amplifier with soft clipping and low internal overloads. The phase shift at high frequencies is also extremely low resulting in a very open, uncompressed big and fatigue-free sound stage.
The amplifier benefits from a comparator and correction circuit so that errors which would occur in the power stage, due to varying loads and distortion, are corrected to match the output of the high impedance input amplifier. Whilst it is maintaining the signal authenticity it is also increases the load stability and forces the output impedance to zero. The amplifier with Sugden error correction has extremely low open loop output impedance with a resultant high damping factor at quite high frequencies.

Coupling of the output of the amplifier to its chosen speakers is via a ‘soft connection’ protection board. It is a static contact switching board using extremely low ‘on resistance’ power mosfets. These devices are timed on and off to enable soundless connection to the speakers however sensitive.

This Amplifier like other Sugden amplifiers has been designed and developed to give the ultimate musical satisfaction from the myriad of music storage / reproduction sources which now exist.

Anthony Miller
Managing Director

Sapphire DAP 800

Sapphire FBA 800

Masterclass FPA-4