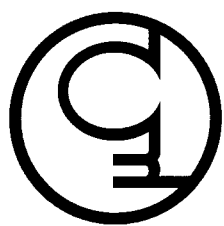


...owner's manual

ergonomics



Duo BS2

WHY USE A SEPARATE CONVERTER ANYWAY?

Simply put, the use of an outboard converter or DAC enables the user of a reasonable one-box CD player to upgrade the performance of the unit by by-passing its own internal DAC, thus limiting the effects of inevitable trade-offs, in such critical areas as power supply. It is also a simple method of upgrading an ageing but otherwise good player, where for instance it uses older multibit conversion technology.

Obviously, a separate converter is mandatory when the user has a transport-only machine, and conversion of the digital bit-stream to analogue form is required.

ISN'T ONE TRANSPORT AS GOOD AS ANOTHER?

Providing that the data stream is being read correctly, surely there should be little need to change the transport? Yes, but there are really surprisingly few truly good transports and the improvements attainable by the addition of an excellent CD turntable can be absolutely startling.

Nevertheless, a good converter is an excellent starting place on the upgrade ladder, and the following manual will describe how you can get the most from your new purchase.

Although still clad in the elegant Bauhausian casing in which it made its initial appearance some years ago, the **Duo BS2** is in fact a very different converter internally. The design has moved from Multibit to Bitstream, chosen because of its vastly improved linearity at very low levels leading to palpably increased musicality. All Duos now have custom-designed and -built Schaffner transformers mounted on a board that is both a revelation, and a delight, to those more used to the cottage-industry aspects of much High-End product.

Duo has ten separate regulated supplies, the better to avoid crosstalk between the analogue and digital circuits. The output stage uses bipolar technology, operating in pure class-A without feedback.

It is a devastatingly simple DAC to operate, but do not be lulled into thinking it lacks any of the fundamental musical attributes of rhythmic coherence, or dynamic and tonal shading that have made it one of the most widely admired converters of recent years. You will, of course, discover this for yourself!

Duo will have one of two applications in your system:-

- 1 as an outboard converter to upgrade the performance of any existing one-box player equipped with a coaxial digital output socket, or
- 2 to provide high-quality digital to analogue conversion for any reference quality CD turntable (such as our Duo CD2.1 & CD3.1 models) or other digital source (CD-R, DCC, DSR, DAT) using either AES/EBU, coaxial or optical cabling.

In application 1 Duo will replace the player's built-in digital to analogue converter (DAC) merely by the connection to the coax socket. In either case Duo performs the same dual function.

It first interprets the input data to DAI format (Digital Audio Interface) and demodulates the signal. It then uses 1-bit PDM Bitstream/256-times oversampling technology to convert the signal into the analogue form recognisable to your amplifier.

If possible, it is preferable for your purchase to be installed into your system by your dealer. However, Duo is simplicity itself to install and use, so should you be left with the task, this is what to do. (We recommend that even experienced audiophiles give these instructions at least a cursory glance).

INSTRUCTIONS. Upon opening the box you should find the following accessories:-

Mains lead
Phono to Phono Interconnects
Optical Blanking Plug
Coaxial Lead

- 1 Carefully check the outside of the carton for any obvious damage. It should have none.
- 2 Very carefully remove the unit, taking care to preserve all the packing. (It is a good idea to put it all in a large plastic bag and deposit it somewhere safe and dry - if the unit ever needs to be sent away it will need to be in its original cartons, correctly packaged. *Never* send it anywhere other than in the proper cartons and with the correct packing materials. Failure to do so may well invalidate your warranty.)

ATTENTION – It is vital that no Micromega is switched on when connected to an amplifier with the volume up. Our machines have no audio attenuation on the mains switch, to avoid the significant compromise in sonic performance that would otherwise result. Failure to observe this simple precaution could well result in damage to your loudspeakers. It is, in any case good practice to turn the volume to ZERO or use MUTE when switching between sources.

- 3 Check that the mains voltage on the carton corresponds to your local power supply. Next, plug the mains lead into the rear of the player and then the wall socket.
 - 4 Make the digital connections (AES/EBU, coaxial or optical) from your transport to the rear of the converter. We strongly recommend you use the AES/EBU connection for superior results. This facility can only be used with a transport that has an AES/EBU output. such as the Duo CD2.1 or Duo CD3.1.
 - 5 Connect the analogue outputs (left and right channels) to the appropriate LINE inputs on your amplifier, preferably a dedicated CD input. *Do not* connect them to the record player inputs (variously, and confusingly, referred to as PHONO or RIAA or even perversely GRAMOPHONE.)
 - 6 Power the unit up by plugging the mains lead into the wall socket, and turning on the separate on/off switch located on the rear plate of the unit. All good electronics sound superior when running at optimum temperature. Wherever it is at all possible, switch all your hi-fi on well before a listening session to ensure adequate warm-up. Indeed, if you are confident about your installation (ventilation etc) there is no real need to turn the converter off at all.
 - 7 There are two switches on the front plate, each with a small LED. The left hand switch is marked INPUT and the right hand, PHASE.
- Left the LED colour denotes the type of input connection from the transport. GREEN is coaxial and RED is optical.

Right LED indicates chosen PHASE condition; GREEN for absolute phase, RED for 180°.

The PHASE LED also acts as a beacon to inform the user of the presence of a digital data stream. If when the Duo is turned on, there is no phase light on, check that the transport is connected. If it is, and the unit is switched on, it may be that you have switched to the wrong input (left button). The user can plug in any two digital sources to the Duo as in common with all Micromega DACs, the correct decode frequency (33, 44 or 48 KHz) is automatically selected. So for instance, it will be perfectly possible to use CD and DAT or DCC transports, through one Duo.

CARE OF YOUR MICROMEGA CONVERTER. Your

Whilst Micromega Duo converter is a highly sophisticated piece of engineering, built to withstand the rigours of everyday use, a minute or two spent studying these commonsense precautions will undoubtedly ensure that your unit continues to give you pleasure for many years to come.

- 1 The cover should not be cleaned with anything remotely abrasive. Polishes containing silicone should be likewise avoided, as the oil migrates and can affect electrical contacts. It is permissible to use proprietary foam-type cleaners sparingly, but really just breathing on the surface and gently rubbing with a soft, lint-free cloth should be all that is needed. Solvents must *never* be applied to the cover.
- 2 Please *do not* open the casing. Whilst we're very proud of the quality of our internal construction, not only could you do expensive damage to your purchase, but the harm to yourself could be irreparable. Electricity can be lethal. If anything should need to be done, see your authorised Micromega dealer.
- 3 If you are using the coaxial interconnection on your Duo (as we would in fact recommend) please insert the optical blanking plug in the optical output of the converter to prevent dust contamination of the socket.

CABLES. The choice of cables is, ultimately, a personal matter. Cables can be used successfully to correct slight tonal imbalances within a system. There is no such thing as a perfect, universal cable. However, all things being equal, the cable with the least sonic signature is to be preferred. The more resolution provided by a system, the more that differences in cabling (and platforms) will become apparent. If you wish for an opinion on suitable cables for your particular set-up, contact your Micromega dealer or distributor who will be glad to offer some recommendations.

Strangely enough, sonic gains of a disturbingly obvious nature can be had by replacing the mains leads in a system. Examine some and keep an open mind.

Back with our feet more firmly on the ground, it is good practice to try to keep the mains and signal leads separate to avoid RF interference, hums and buzzes. If it is at all practical, a dedicated spur from the consumer mains unit for the hi-fi will ensure less mains-borne breakthrough.

WARNING – it is difficult to overstate the importance of observing the correct packing as used when the unit is dispatched. Failure to repack correctly for shipment will almost certainly result in damage. Though you are unlikely to need to return your unit, it is imperative that it is properly packed for a valid warranty repair.

Cher Client,

Tout d'abord, permettez-moi de vous remercier pour l'intérêt que vous portez aux produits MICROMEGA et en particulier au DUO.BS que vous venez d'acquérir et dont je me permettrai de dresser les grandes lignes de la conception technique.

DUO.BS est un convertisseur numérique analogique destiné à améliorer de façon importante la reproduction musicale des lecteurs compact disc ou d'offrir une section numérique analogique de très haute qualité aux platines compact disc.

Le rôle de DUO.BS est double. Tout d'abord, le circuit numérique d'entrée doit interpréter puis décoder les données numériques d'entrée conformément au standard DAI (Digital Audio Interface). Ensuite, intervient la conversion numérique analogique. Pour ce faire, DUO.BS fait appel à la technologie 1 bit PDM avec un suréchantillonnage de 256 fois. Cette technologie très récemment apparue sur le marché permet une restitution dont la musicalité est indiscutable et ce grâce à une linéarité à très faible niveau qui n'est pas envisageable avec la technologie de conversion multibits.

Le DUO.BS fait aussi appel à de multiples alimentations régulées pour éviter une diaphonie des signaux numériques et analogiques. Le DUO.BS incorpore à cet effet dix alimentations régulées différentes. Les étages de sorties couplés en continu font appel à la technologie bipolaire et leur fonctionnement sans contre-réaction se fait en classe A avec une impédance de sortie de 10 ohms.

Dear Customer,

First of all, let me thank you for your interest in the MICROMEGA product line and especially for the DUO.BS that you recently acquired and for which I would like to draw the major technical outlines.

DUO.BS is a digital to analogy converter intended to increase the sonic quality of CD players or to provide a very high quality D-A conversion for CD turntables.

The function of DUO.BS is double. First of all the digital circuit must interpret the input data according to the DAI (Digital Audio Interface) format then demodulate the composite signal. Following this appears D-A conversion. For the DUO.BS, we use 1 bit PDM Bitstream technology with 256 times oversampling. The choice for that specific technology was guided by the drastic increase in musicality due to the excellent performance of the chip at very low level, showing a linearity impossible to achieve with multibit system.

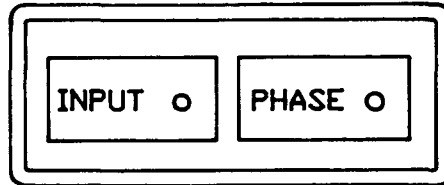
DUO.BS also incorporates many different regulated power supplies to avoid crosstalk between analog and digital signals. Actually the DUO.BS is equipped with ten separated regulated supplies. The output stage uses bipolar technology and operates without feedback in pure class A with an output impedance of 10 ohms.

FACE AVANT / FRONT PLATE

Les fonctions sont activées par des commutateurs tactiles. Il suffit d'une simple pression sur le mot indiquant la fonction pour modifier son état.

Sélecteur / Input
d'entrée / selector

VERT = COAX = GREEN
ROUGE = OPTO = RED



The functions are activated by tact switches. A simple pressure on the word indicating the function is enough to modify the state of the function.

Inverseur de / Absolute
phase absolue / phase switch

VERT = 0° = GREEN
ROUGE = 180° = RED

ATTENTION : La diode de phase est utilisée comme indicateur de verrouillage du convertisseur sur les données d'entrée. Elle est éteinte si le convertisseur n'est pas raccordé à un lecteur CD ou si ce dernier est éteint.

CAUTION : The phase led is used as the converter locking indicator on input data. It will be off if the converter is not connected to a CD player or if the player is off.

FACE ARRIERE / REAR PLATE

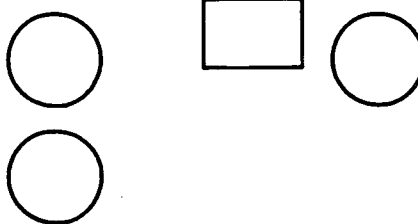
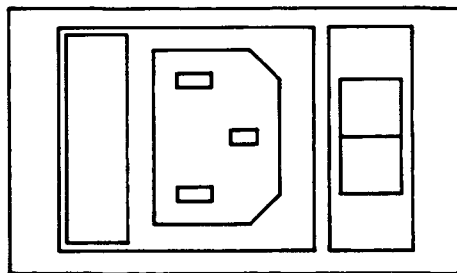
Porte-fusible / Fuse holder

Fusibles / Slow
retardés / blow fuses

200-240 V = 160 mA
100-130 V = 315 mA

Sorties / Audio
audio / outputs

Blanc = Gauche/White = left
Rouge = droite/Red = Right



Prise secteur/AC mains plug

Interrupteur / On-Off
marche/arrêt / switch

Entrées / Digital
numériques / inputs

COAX = 0,5 VP.P/75 Ω
OPTO = Standard Toshiba

ATTENTION : La tension d'alimentation est inscrite sur l'étiquette du porte-fusible. Tout changement doit être effectué par votre revendeur.

CAUTION : The AC line voltage is indicated on the fuse holder label. In case You want to modify it please be in contact with your dealer.

