DIGIBOXES

USER GUIDE

December 2003 Rev 1

Digibox Range

AES-S3 (AES splitter):

Why use an AES/EBU splitter:

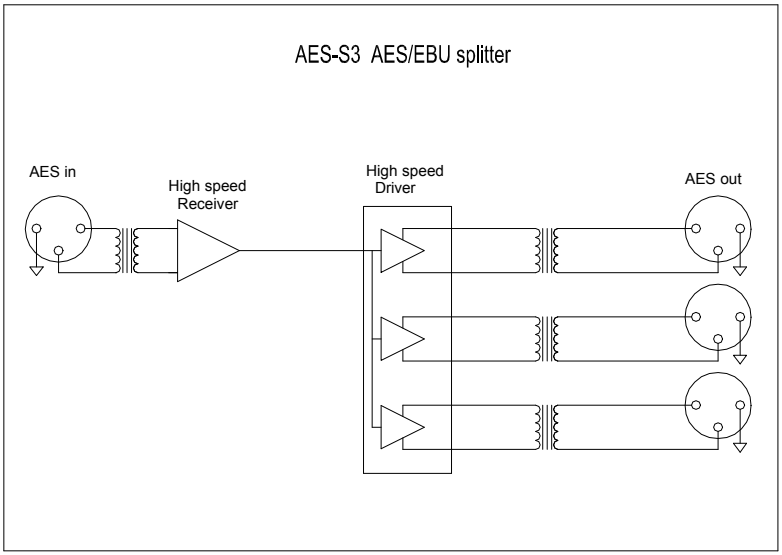
Because of the high frequency content of an AES/EBU digital signal, the connection between a transmitter and receiver needs to be that of a transmission line. This means the cable must have a characteristic impedance equal to the output impedance of the transmitter and the input impedance of the receiver to avoid reflections on the line. So, one cannot connect an AES output to several AES inputs without changing the impedance of the line and creating reflections.

The AES-S3 solves this problem with its ability to drive up to 3 different devices.

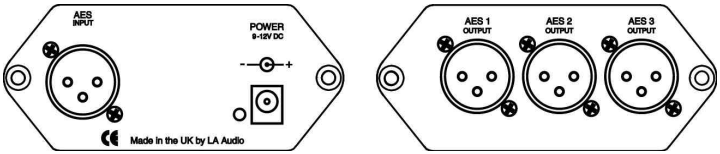
Using the AES-S3:

A cable with an impedance of 110 ohms (also called an AES digital audio cable), must be used especially for long distances (up to several hundred meters). For short distances < 10 metres, any good microphone cable should be OK.

AES-S3 block diagram



AES-S3 Connections



Input
One AES/EBU XLR Female

Outputs
Three AES/EBU XLR Male

Specifications

One Transformer balanced input on XLR Female
Input Impedance = 110 Ohms

Three Transformer balanced outputs on XLR Male
Output impedance = 110 Ohms

Sample rate : Up to 96KHz

Jitter : < 1ns

AES-D2 (AES/EBU channel divider):

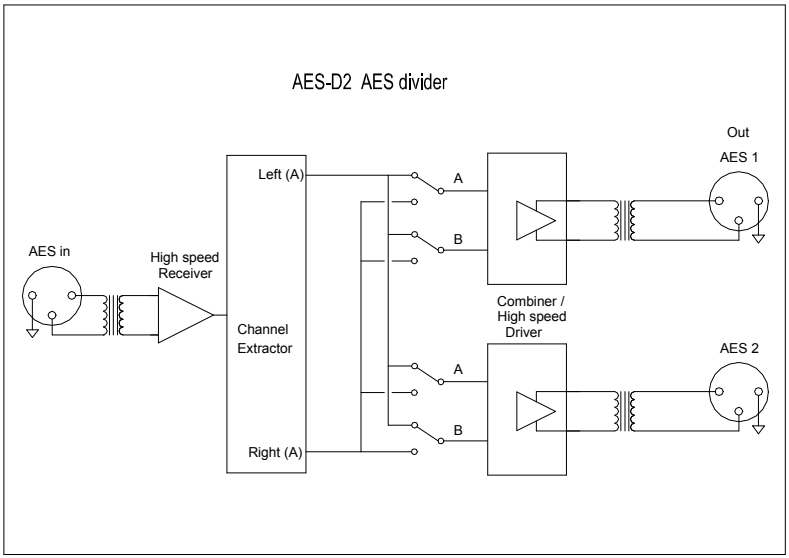
Why use an AES/EBU channel divider:

The AES/EBU digital signal contains two audio channels (left & right, also called A & B or 1 & 2) on the same transmission line. In some applications you may need a mono signal. The AES-D2 enables you to extract a mono signal from an AES/EBU stereo signal (A or B) and send it to two XLR outputs. The AES-D2 also allows you to select each output to have any combination of input signal. So it is possible to use the unit as a two way splitter or reverse the Left and Right of an AES/EBU stereo signal independently on each output.

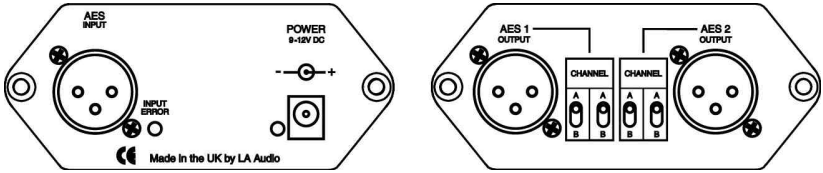
Using the AES/EBU AES-D2 :

A cable with an impedance of 110 ohms (also called an AES/EBU digital audio cable), must be used especially for long distances (several hundred meters). For short distances < 10 metres any good microphone cable should be OK.

AES-D2 block diagram



AES-D2 Connections



Input
One AES/EBU XLR Female

Outputs
Two AES/EBU XLR Male

Specifications

One Transformer balanced AES/EBU input on XLR-F.
Input impedance: 110 Ohms

Two buffered transformer balanced AES/EBU outputs on XLR-M.
Output impedance: 110 Ohms

Channel Selection on each output: AA, AB, BB, BA

Sample Rate: up to 96 kHz.

Jitter: < 8.0 ns

AES-SPD (AES/EBU S/PDIF converter):

Why use an AES/EBU S/PDIF converter:

Often, it is necessary to connect a professional device (AES/EBU) with some semi-pro or home studio equipment (S/PDIF) or vice versa. The AES-SPD solves this problem. Also all outputs are available simultaneously.

Using the AES-SPD:

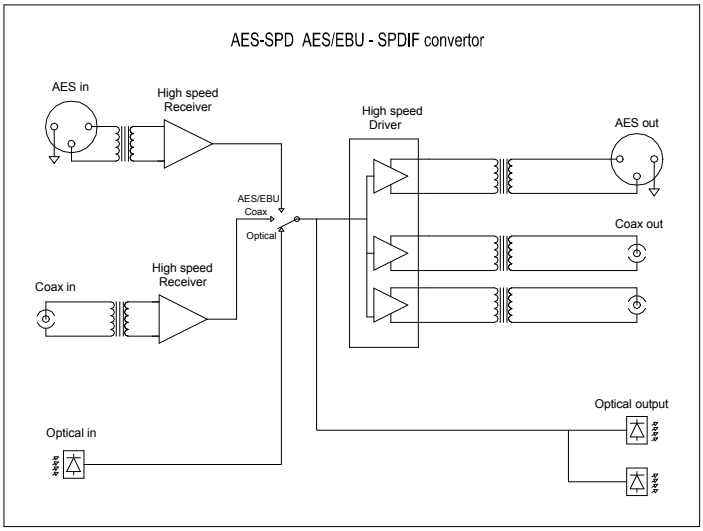
One switch on the front panel selects between AES/EBU and S/PDIF. When in S/PDIF mode another switch selects between coax and optical.

For AES/EBU a cable with an impedance of 110 ohms (also called an AES/EBU digital audio cable), must be used with long distances (up to several hundred meters). For short distances <10 metres, any good microphone cable should be OK.

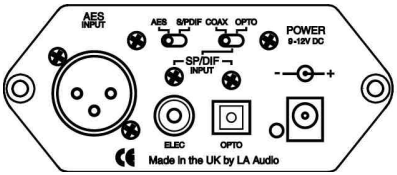
For S/PDIF coaxial a 75 ohm cable must be used.

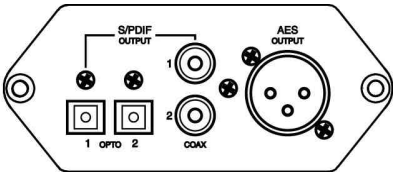
For S/PDIF optical a good quality fibre optic cable is recommended.

AES-SPD block diagram



AES-SPD Connections





Inputs

One	AES/EBU	XLR Female
One	Coax S/PDIF	Phono (RCA)
One	Optical S/PDIF	TOS-Link

Outputs

One	AES/EBU	XLR Male
Two	Coax S/PDIF	Phono (RCA)
Two	Optical S/PDIF	TOS-Link

Specifications:

AES transformer balanced input on XLR-F
AES Input impedance: 110 Ohms
One buffered transformer balanced AES/EBU output on XLR-M
AES Output impedance: 110 Ohms

S/PDIF input on Phono (coax) and TOS-Link (optical) connectors
S/PDIF input impedance (coax): 75 Ohms.

2 buffered coaxial outputs on Phono
S/PDIF output impedance (coax): 75 Ohms

2 TOS-Link outputs

Sample Rate: up to 96 kHz.

Jitter: < 3.0 ns.

SPD-S4 (S/PDIF splitter):

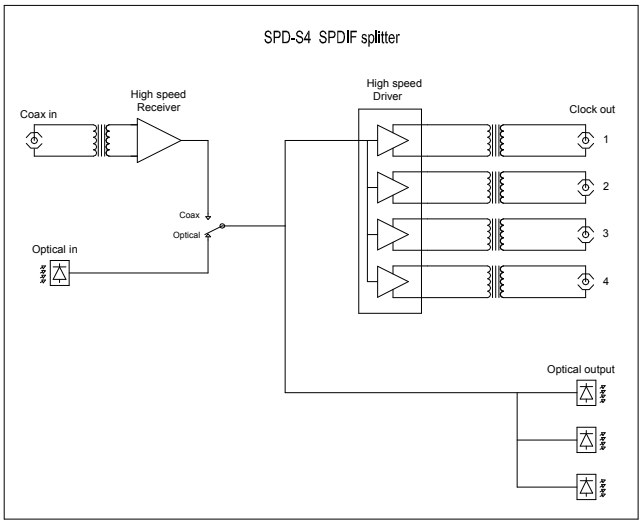
Why use an S/PDIF splitter:

Because of the high frequency content of an S/PDIF digital signal, the connection between a transmitter and receiver needs to be that of a transmission line. This means the cable must have a characteristic impedance equal to the output impedance of the transmitter and the input impedance of the receiver to avoid reflections in the line. So, one cannot connect an S/PDIF output to several S/PDIF inputs without changing the impedance of the line and creating reflections.
The SPD-S4 solves this problem with its ability to drive up to 7 different devices (4 coaxial and 3 optical).

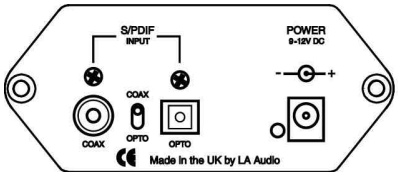
Using the SPD-S4:

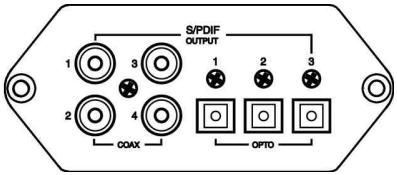
The SPD-S4 can convert an electrical coax signal into an optical signal or vice versa.
For S/PDIF a coaxial 75 ohm cable must be used.
For S/PDIF optical a good quality fibre optic cable is recommended.

SPD-S4 block diagram.



Connections





Inputs

One	Coax S/PDIF	Phono (RCA)
One	Optical S/PDIF	TOS-Link

Outputs

Four	Coax S/PDIF	Phono (RCA)
Three	Optical S/PDIF	TOS-Link

Specifications

One S/PDIF input on Phono (coaxial)
Input impedance: 75 ohms

One TOS-Link input (optical) connector

Four buffered coaxial outputs on phono
Output impedance: 75 ohms

Three TOS-Link outputs

Sample Rate: up to 96 kHz

Jitter: < 3.0 ns.

CLK-D4 (clock distributor):

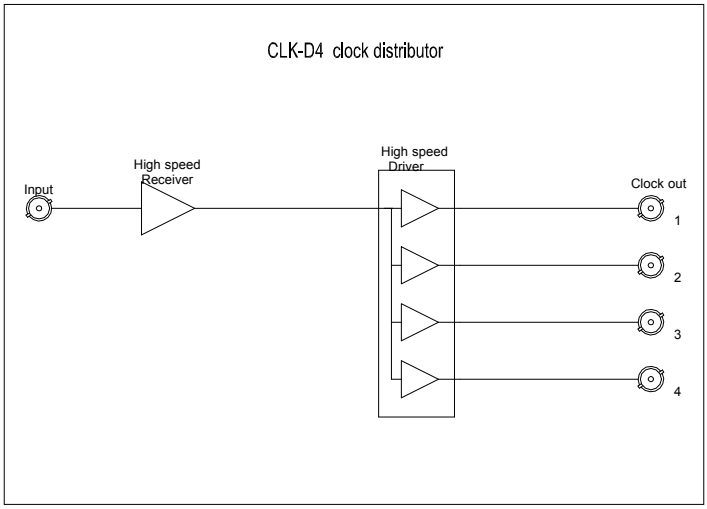
Why use a clock distributor:

Because of the high frequency content of a Word Clock signal (even higher with Super Clock), the connection between a transmitter and receiver needs to be that of a transmission line. This means the cable must have a characteristic impedance equal to the output impedance of the transmitter and the input impedance of the receiver to avoid reflections in the line. So, one cannot connect a Clock output to several Clock inputs without changing the impedance of the line and creating reflections.
The CLK-D4 solves this problem with its ability to drive up to four different devices.

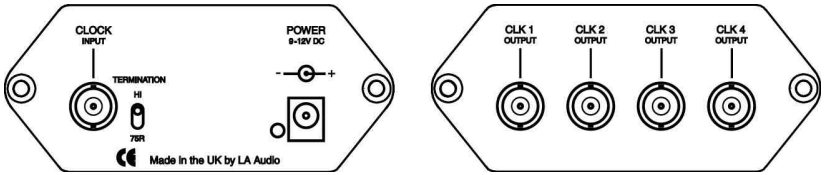
Using the CLK-D4:

A cable with a characteristic impedance of 75 ohms must be used, particularly with long distances and Super-Clock mode (any video cable with BNC connectors). The CLK-D4, has a very high input sensitivity and is able to receive a Word Clock and even Super-Clock signal via a 100 metre cable and so can be used as a buffer for long distances.

CLK-D4 block diagram



Connections



Inputs

One Clock input	BNC
Four Clock outputs	BNC

Specifications:

Input on BNC.
Input impedance : 75 ohms or open

Buffered output on BNC.
Output impedance : 75 ohms

Jitter: < 0.5ns

CLK-C4 (clock converter):

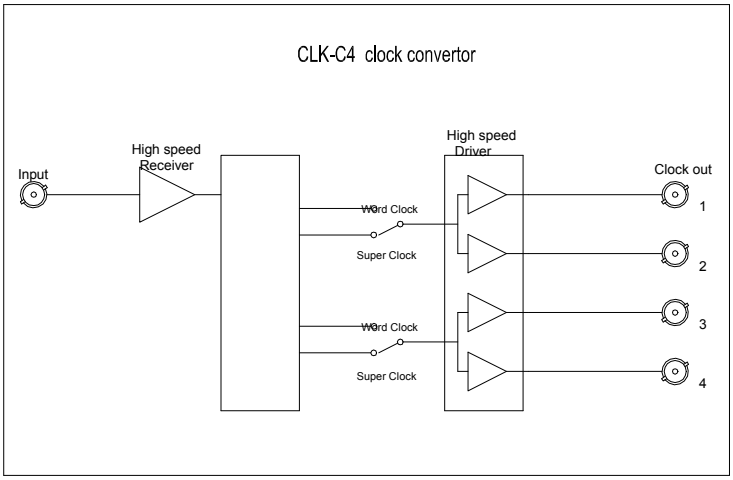
Why use a clock converter:

When working in a studio or on a project where both Word-Clock and Super-Clock equipment is being used it will be necessary to synchronise the two standards. The CLK-C4 solves this problem by its ability to automatically detect and lock onto whichever standard clock is connected to its input and by having two 'pairs' of outputs which can be selected to be either Word-Clock or Super-Clock. The CLK-C4 has two LEDs on the front panel which indicate whether the input is Word-Clock or Super-Clock and one other LED which is only used with a Word-Clock input and indicates whether Super-Clock is locked at the output.
(not used with a Super-Clock input)

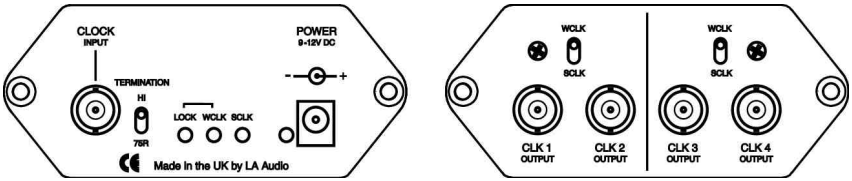
Using the CLK-C4:

A cable with a characteristic impedance of 75 ohms must be used, particularly with long distances and Super-Clock mode (any video cable with BNC connectors). The CLK-C4, has a very high input sensitivity and is able to receive a Word Clock and even Super-Clock signal via a 100 metre cable and so can be used as a buffer for long distances.

CLK-C4 block diagram



Connections



Inputs

One Clock input	BNC
Four Clock outputs	BNC

Specifications:

Input impedance : 75 ohms or un-terminated

Output impedance : 75 ohms

LED indication of Word-Clock or Super-Clock input

LED indication of Word-Clock to Super-Clock lock

Jitter: < 0.5 ns

CLK-G4 (clock generator) :

Why use a clock generator:

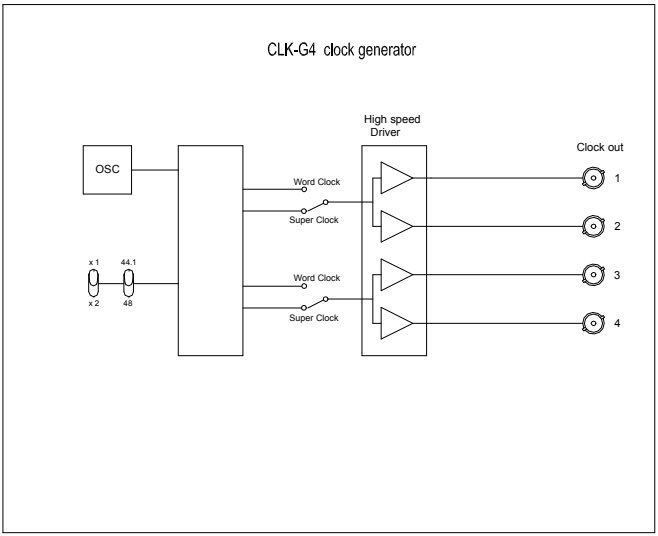
A clock generator is used to synchronise equipment in a digital audio environment. Most master clock generators on the market also synchronise with video for post production, this can make a master clock very expensive.

For applications which do not need a video lock, the CLK-G4 offers a very stable and precise master clock at an affordable price. Also, each pair of outputs can independently deliver Word-Clock or Super-Clock. (Super clock is a high speed clock developed by Digi-Design, the frequency is 256 times that of Word-Clock.

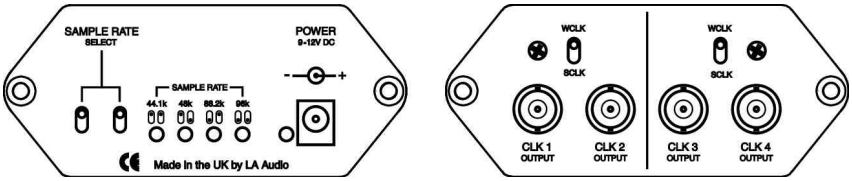
Using the CLK-G4 :

A cable with a characteristic impedance of 75 ohms must be used, particularly with long distances and Super-Clock mode (any video cable with BNC connectors). The CLK-G4 is able to drive up to a 100 metre cable.

CLK-G4 block diagram



Connections



Output A
Two Clock outputs BNC

Output B
Two Clock outputs BNC

Specifications:

Four buffered outputs on BNC
Output impedance : 75 ohms

Sample Rate : 44.1 / 48 / 88.2 / 96 kHz

Precision & stability : +/- 3.5 ppm

Jitter : < 0.5 ns