

# AES/EBU-to-S/PDIF converter

The converter is intended primarily for use with the sample rate converter published in the October 1996 issue of this magazine.

The conversion of a symmetrical signal to an asymmetrical one requires no more than a small transformer. Amplification is not required since the AES/EBU signal is strong enough to generate the S/PDIF signal (500 mV<sub>pp</sub> into 75 Ω). However, the quality of the conversion depends

entirely on that of the DIY transformer.

The simplicity of the circuit means that the turns ratio depends on the level of the symmetrical input voltage. This is the reason that the diagram shows two versions. Version A is suitable for inputs of 3.6 V<sub>pp</sub> and Version B for inputs of 5 V<sub>pp</sub>.

The transformer is wound on a Type G2-3/FT12 core. The primary and secondary are wound

from enamelled copper wire of 0.5 mm dia. The transformer for Version A needs a primary winding of 18 turns and a secondary of 5 turns. That for Version B requires a primary of 20 turns and a secondary of 4 turns.

The secondary impedance is transformed to the primary winding. Assuming that the system has a correctly terminated output of 75 Ω, the primary winding needs to be

shunted by a resistor, R<sub>1</sub>, of 124 Ω (Version A) or 118 Ω (Version B) to give an input impedance of 110 Ω. This arrangement ensures a correct input impedance over a wide range of input frequencies. Only at 60 kHz (Version A) or 50 kHz (Version B) does the impedance drop by about 20%.

The bandwidth of the converter is ≥ 20 MHz.

[Giesberts - 974080]

