AES/EBU to G.703 (2 Mb/s) Network Interface Adapter

FEATURES

- Conversion of AES/EBU audio to 2Mb/s G.703 for transport via telecom circuits.

- Bi-direction operation possible with independent transmit and receive functions on the one card.

- Choice of 75Ω unbalanced or 110Ω balanced AES/EBU line connections.

- 48 kHz 20 bit default sample rate, 25 - 55 kHz rates supported.

- Optional external AES/EBU reference input for rates other than 48 kHz.

- Allows Channel (C), User (U) or RS232 data to be conveyed.

GENERAL

The DAC-4440 forms a transmitter/receiver system, which is designed to allow an AES/EBU digital audio signal to be distributed via a 2Mb G.703 (E1) network.

The DAC-4440 converts an AES/EBU digital audio signal into a non-framed 2 Mb G.703 (E1) compatible signal.

The DAC-4440 combines the 20 bit audio data with either C data, U data or RS232 data into an output stream at 2.048 Mb/s. This stream is then output as a standard G.703 HDB3 encoded 75Ω unframed signal.

The DAC-4440 also converts a G.703 signal, whose content is formatted as per the output of another DAC-4440, to an AES/EBU data stream. The receiver obtains synchronism with the incoming stream and then separates the audio data from the combined C, U or RS232 data.

The DAC-4440 allows a local reference AES/EBU signal to be input for rate synchronization of the output. With no reference signal present, output rate is automatically set to 48 kHz.

The system can handle mono or stereo 20 bit AES/EBU audio at any rate from 25 kHz to 55 kHz, although it is designed for a nominal 48 kHz.
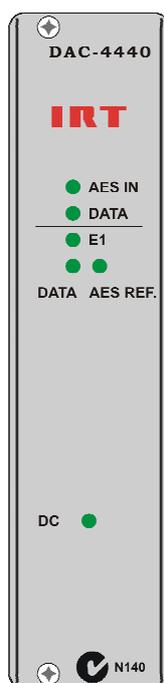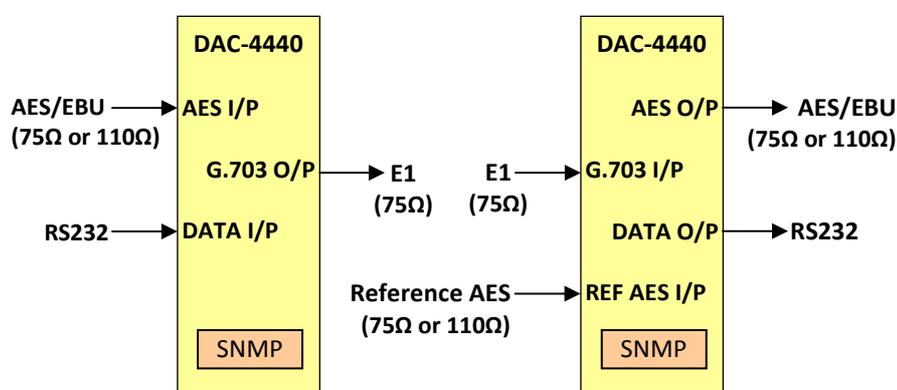
The system also allows either the Channel (C), User (U) or RS232 data to be conveyed.

Front panel LEDs indicate when an AES/EBU signal and RS232 data is present on the transmit side of the DAC-4440, and when a valid 2.048 Mb/s G.703 input signal, and RS232 data, is present and when a valid AES/EBU reference signal is applied to the receive side of the DAC-4440.

Relay outputs are provided on the rear assembly for remote status indication for when a valid AES/EBU or E1 signal is present or invalid.

SNMP (Simple Network Management Protocol) remote monitoring is possible when used in conjunction with an IRT frame fitted with SNMP capability.

BLOCK DIAGRAM DAC-4440 SIGNAL PATH

TECHNICAL SPECIFICATIONS

AES Input:	AES/EBU (75Ω unbalanced or 110Ω balanced).
Input Level	200 mVp-p minimum.
Format	AES3-1992 standard.
Sample Rate	25kHz to 55kHz.
Input Cable Length	> 500m 75Ω (Belden 8281).
	> 200 110Ω (AES digital high quality shielded pair).

Data Input:	
Type	RS-232.
Rate	9600 baud.

G.703 Output:	2.048 Mb/s G.703.
Impedance	75Ω unbalanced terminating.
Format	CCITT G.703 compliant.

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AES Output:	AES/EBU (75Ω unbalanced or 110Ω balanced).
Format	AES3-1992 standard.

Alarms:	
MAJOR	Settable for either loss of AES or E1. Open circuit on alarm.
MINOR	Settable for either loss of AES or E1. Open circuit on alarm.

System Performance (End to End):		
Dynamic Range	120 dB	(20 Hz to 20 kHz, -60dB input).
THD + N	< -88 dB	(20 Hz to 20 kHz, full scale input).
		(Fin[1] & Fout[2] between 25 and 55 kHz).
	< -100 dB	(1kHz, full scale input).
		(Fin[1] & Fout[2] between 34 and 55 kHz).
	< -94 dB	(10kHz, full scale input).
		(Fin[1] & Fout[2] between 34 and 55 kHz).
Output signal rise and fall times	< 20 ns.	
Frequency Response	±0.05 dB 20 Hz to 20 kHz.	

Power Requirements:	
Voltage	28 Vac CT (14-0-14) or ±16 Vdc.
Power consumption	< 2 VA.

Other:		
Temperature range		0 - 50° C ambient.
Connectors	**Unbalanced**	BNC.
	Balanced	Removable screw terminal blocks.
Mechanical		Suitable for mounting in IRT 19" rack chassis with input output and power connections on the rear panel.
Finish	**Front panel**	Grey background, black lettering & red IRT logo.
	Rear assembly	Detachable silk-screened PCB with direct mount connectors to Eurocard and external signals.
Dimensions		6HP x 3 U x 220 mm IRT Eurocard.

NOTES:	1	Fin = sample rate of AES/EBU input to DAC-4440;
	2	Fout = sample rate of AES/EBU output from DAC-4440.