

NICAM-728 AUDIO ENCODER & MODULATOR



BTESA's NICAM & FM Audio Encoder and Modulator uses the base band analogue audio inputs (mono and/or stereo) and generates all the sound carriers employed for digital stereo sound in analogue TV broadcasting. Thus, it provides NICAM-728 and also simultaneous mono FM sound carrier if needed. Besides, if the vision IF signal is present at its input, it can combine all of them to provide the full TV IF signal (Image plus NICAM and FM mono),

This Audio Encoder and Modulator is born to offer great flexibility to our costumers, allowing its use in TV transmitters from any manufacturer. It is able to manage up to 4 audio inputs, balanced or asymmetric, (one stereo audio, two mono audios, two stereo audios,...) to provide digital stereo, bilingual or mono sound.

It is implemented by digital processing which allows a flexible preemphasis so as to cover all television standards at full performance (just changing the output band-pass filter for the case of non-European norms).

MAIN CHARACTERISTICS

- **1 RU** Digital Encoder Modulator, suitable for **any TV transmitter**
- **NICAM-728** QPSK and **simultaneous Mono FM** Generator
- Switches manually or automatically between **mono, stereo or mono bilingual** using the information provided in line 16th of video signal (VPS signalling)
- 2 Audio Inputs (one stereo or two mono). Optional **4 audio inputs**
- Suitable for **any TV standard**, different Digital Pre-emphasis generated accordingly
- Sigma-delta converters for audio sampling, up to 24 bits equivalent resolution with 32 ksamples/sg sampling rate
- **External programmer** to check and modify parameters
- **LED monitoring**
- Sub-D connector for **Alarms and controls**

SPECIFICATIONS

Interfaces

INPUTS		OUTPUTS	
Audio Input	2 x XLR, balanced. 600Ω From -10 to +20 dBm Option: 4 balanced inputs Option: Asymmetric inputs (0dBu ±6dB, 10kΩ)	IF OUT	Power level: Adjustable, (max -8 dBm) for the first carrier (FM). The second carrier (NICAM) is set to -7 dB ref. first carrier (standard)
IF input	If needed, a video IF signal can be inserted at this input so it is combined with the IF OUT to provide a full TV IF signal	IF TEST	Front panel connector Sample of -4dB ref. IF OUT
Freq. reference	10MHz or 38,9MHz	Stereo Audio	Loop-through of the input
Video Base Band	VPS signalling (line 16 th)	Video Base Band	Loop-through of the input

Quality Measurements

NICAM Signal norm B/G (33.05 MHz) Conditions: IN = 1V _{eff} non-balanced / G = -21dB / L = -22dBFS. Transmitting NICAM + FM			Mono FM Signal norm B/G (33.4 MHz) deviation of 50 KHz.with preemph Conditions: IN = 1V _{eff} non-balanced / G = -9dB / L = -10dBFS. Transmitting NICAM + FM		
BER	< 1.10 ⁻⁷				
Total Harmonic Distortion (THD):	25 Hz	0.05%	Total Harmonic Distortion (THD):	25 Hz	0.12%
	1 KHz	0.09%		1 KHz	0.07%
	14 KHz	0.15%		15 KHz	0.12%
Signal to Noise Ratio (S/N):	25 Hz	65 dB	Signal to Noise Ratio (S/N):	25 Hz	69 dB
	1 KHz	66 dB		1 KHz	70 dB
	14 KHz	66 dB		14 KHz	57 dB

Control

External Programmer to modify 12 parameters:		Sub-D connector	
Standard	Gain L/R	Alarm	oscillator unlock
Reference Frequency	Transmitting Mode: Mono/Stereo/Dual/Auto	Control	Start/Stop
Preemphasis	Peak Lev. L/R		
Deviation Factor	Carrier Level	LED monitoring (4 parameters)	
Adjust Mode (Carrier Test)	Control Voltage of VCXO C.	Audio Level	Modulator Start/Stop
Mute Audio	Audio Inputs (2 or 4)	Modulator Mode	Pre-emphasis status

Mechanical and electrical

Dimensions (WxHxD)	19", 1RU, 295mm	Power Supply	220VAC, 50Hz
Weight	6 kg	Power consumption	9W

Models and specifications subject to change without notice