

3040A

TV SOUND MULTIPLEX MODULATOR (CZECHO SYSTEM)

Video & audio signal generator/Multiple-signal generator



General

This unit is TV sound multiplex modulator which produces two sound carriers for Czecho system TV sound multiplex.

TV sound IF frequency is output as the output signal.

This unit is designed to be able to use for automatic measurement, so that this unit is recommended to use in research, development, production, quality control and etc., of TV receivers, VTR and etc., in combination with various types of video modulator.

Features

- The stereo matrix circuit employs unique high-frequency matrix circuits, not causing separation degradation due to modulation degree difference in FM modulator.
- This unit incorporates two separate high-stability, low-distortion rate sound oscillators capable of producing six frequencies, 100, 400, 1k, 3k, 7.5k and 10kHz and provides monitor terminals for individual outputs on rear panel.
- The sound input and signal output terminals are provided on both front and rear panels. (But, output terminal on the front panel is IF monitor terminal.)
- The modulation degrees of S₁, S₂ and the pilot signal can be set digitally in step of 1%.
- The output levels of S₁ and S₂ can be varied in step of 1dB.
- Total of 16 memories are incorporated, providing outstanding convenience for sequential adjustment.
- Operations on the front panel are able to control all remotely. In addition to the standard remote control function, GP-IB control is also available by request (option).

Composition

Main Unit 1

Dimensions 425(W) × 99(H) × 380(D) mm (Excluding projections)

Weight Approx. 12 kg

Accessories

Power Cable (Including 3pin→2pin converter) 1

Rack Mount Adapter 1 set

Instruction Manual and Test Result Sheet 1

Remote Terminal Plug 1 (Except at the time of GP-IB)

Power Source

Input Voltage Allowable Range : AC100, AC120V, AC220V, AC240V
by switching (50Hz/60Hz)

Power Consumption : Approx. 40VA

Operating Environment

Temperature : + 5 °C ~ +40 °C

Humidity : 45% ~ 85%RH (No dew generation)

Rating

• Radio Wave Format

CCIR (D. K) system

• Output Frequencies

IF_A output

S₁ : 32.40MHz (IF_v—416fH)

S₂ : 32.6421875MHz (IF_v—400.5fH)

• Output Impedance

50 Ω, Unbalanced, BNC-R connector

• Output Level

S₁ : 100dB μV

S₂ : 93dB μV

• Modulation System

Direct FM Modulation by using vari-cap for both S₁ and S₂. (with APC)

• Modulation Degree

Both S₁ and S₂ ΔF = ± 50kHz (ΔF_{max} = ± 60kHz).

For S₂ only by pilot carrier. ΔF = ± 2.5kHz (Indication in monaural mode : 67%)
= ± 3.75kHz (Indication in stereo, two sound mode : 100%)

• Pilot Signal

Carrier frequency : 54.6875kHz (3.5f_H)

In stereo mode : 50% AM by 117.5Hz (f_H/133)

In dual sound mode : 50% AM by 274.1Hz (f_H/57)

In monaural mode : Unmodulated

The pilot carrier wave and mode selection signal are synchronized with external video signal input. When there is no video signal, the pilot signal is automatically synchronized with built-in crystal oscillator.

• Input Impedance

Audio 600 Ω/10k Ω switching type.

Video (For reference of synchronization of pilot signal)

75 Ω/High impedance bridging whichever selected.

Unbalanced, BNC-R connector

• Input Level

Audio At 600 Ω : 0dBm (+3 to -6dB)

At 10k Ω : 3.1Vp-p ~ 1Vp-p

Video 1Vp-p, 75 Ω termination

• Pre-emphasis

50 μs switchable on/off

• Built-in Oscillators

100, 400, 1k, 3k, 7.5k or 10kHz whichever selected can be generated. Two independent routes are incorporated.

Output for Trigger 600 Ω 0dBm BNC-R

• Audio Modulation Mode

Switching to internal modulation oscillator or external signal input can be made by switch on panel or remote control for following settings.

• Digital Setting Function

• Each sound modulation degree of S₁ and S₂ (100% = ± 50kHz) can be varied in step of 1% in 0 ~ 240% range (ΔF = 0 ~ ± 120kHz)

• Pilot modulation degree (100% = ± 3.75kHz, but 50% AM modulation in stereo and dual sound modes) can be varied in step of 1% in 0 ~ 150% range (ΔF = 0 ~ ± 5kHz or more)

• Identification modulation degree (50% AM) can be varied in step of 1% in 0 ~ 100% range.

• Output level of sound S₁, S₂ can be reduced in step of 1dB down to 65dB.

• Level ratio of S₁/S₂ can be varied in step of 1dB in 0 ~ 15dB (with CAL control for fine level adjustment on front panel)

Performance

• Frequency Response

Within ± 0.5dB in 50Hz ~ 15kHz range against flat and standard pre-emphasis characteristics as 400Hz is reference.

• Distortion Rate

Less than 0.3% in 50Hz ~ 15kHz range at ΔF = ± 50kHz

• FM Noise

More than -60dB for 1kHz at ΔF = ± 50kHz

• AM Noise

More than -40dB for 1kHz at ΔF = ± 50kHz

• Frequency Accuracy

Within ± 5 × 10⁻⁵

• Spurious

Less than -60dB against peak level of S₁

• Crosstalk

Less than -60dB in 50Hz ~ 15kHz range at ΔF = ± 50kHz

• Stereo Separation

At ΔF = ± 50kHz

50Hz ~ 10kHz Less than -40dB

10kHz ~ 15kHz Less than -30dB

• Output Variation

Within ± 1dB

• Pilot Frequency Deviation (At internal sync.)

Carrier wave Within 54.6875kHz ± 5Hz

Modulation wave Within 117.5Hz ± 0.1Hz

Within 274.1Hz ± 0.1Hz

• Pilot Modulation Degree Deviation

Carrier wave Within ± 0.5kHz for ± 2.5kHz

Modulation degree Within ± 5% for AM 50%

• Digital Meter Indication Error

Within ± 3% for 100% indication value

• Digital Setting Function Error

Within ± 1 digit

• Internal Oscillator

Frequency deviation Within ± 3% for indication value

Distortion rate Less than 0.1%