192F

TV SOUND MULTIPLEX MODULATOR (GERMANY SYSTEM)

General

This unit is TV sound multiplex modulator which produces two sound carriers for Germany system TV sound multiplex. TV sound IF frequency is obtained 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 stand-alone or in combination with various types of up converter.

Features

- The stereo matrix circuit employs unique high-frequency matrix circuits, not causing any 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 on rear panel for individual outputs.
- 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 steps 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·····1set
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 ℃ ~ +40℃
Humidity : 45% ~ 85%RH (No dew generation)

Rating

• TV System
CCIR (B. G) system

• Output Frequencies IF
When IF is output
S_1 : 33.40MHz
S_2 : 33.1578125MHz

• Output Impedance
50Ω, unbalanced, BNC-R connector

• Output Level
S_1 : 100dBμV
S_2 : 93dBμV

• Modulation System
Direct FM Modulation by using vari-cap for both S_1 and S_2, with APC.

• Modulation Degree
Both S_1 and S_2 △F = ±50kHz (△Fmax = ±120kHz).
For S_2 only by the pilot carrier. △F =±2.5kHz (Indication in MONO mode : 67%)
= ±3.75kHz (Indication in ST, 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 TWO 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 600Ω/10kΩ whichever selected, Unbalanced, BNC-R connector (on front and rear panels)
Video (for reference of synchronization of pilot signal)
75Ω/high impedance bridging whichever selected, Unbalanced, BNC-R connector

• Input Level
Audio At 600Ω : 0dBm (+3 to −6dB)
At 10kΩ : 3.1Vp-p ~ 1Vp-p
Video 1Vp-p, 75Ω terminated value

• Pre-emphasis
50μs switchable on/off

• Internal Oscillators
100, 400, 1k, 3k, 7.5k or 10kHz whichever selected can be generated. Two independent routes are incorporated.
Output for Trigger 600Ω 0dBm BNC-R

• Audio Modulation Mode
Switching to internal modulation oscillator or external signal input can be made.

• Digital Setting Function
- ○ Each sound modulation degree of S_1 and S_2 (100%=±50kHz) can be varied in step of 1% in 0 ~ 240% (△F = 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% (△F = 0 ~ ±5kHz or more)
- ○ Identification modulation degree (50% AM) can be varied in step of 1% in 0 ~ 100%.
- ○ Output level of S1 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 against flat and standard pre-emphasis characteristics as 400Hz reference.

• Distortion Rate
Less than 0.3% in 50Hz ~ 15kHz at △F = ±50kHz

• FM Noise
More than −60dB for 1kHz at △F =±50kHz

• AM Noise
More than −40dB for 1kHz at △F =±50kHz

• Frequency Accuracy
Within $\pm 5 \times 10^{-5}$

• Spurious
Less than −60dB against peak level of S_1

• Crosstalk
Less than −60dB in 50Hz ~ 15kHz at △F =±50kHz

• Stereo Separation
At △F =±50kHz
50Hz ~ 10kHz More than 40dB
10kHz ~ 15kHz More than 30dB

• Output Variation
Within ±1dB

• Pilot Frequency Deviation
Carrier wave Within 54.6875kHz ±5Hz
Modulation wave Within 117.5Hz, 274.1Hz ±0.1Hz

• Pilot Modulation Degree Deviation
Carrier wave Within ±0.5kHz for ±2.5kHz
Modulation degree Within ±5% for 50%

• Digital Meter Indication Error
Within ±3% for 100% value

• Digital Setting Function Error
Within ±1 digit

• Internal Oscillator
Frequency deviation Within ±3% of meter indication value.
Distortion rate Less than 0.1%