



Technics SA-5250

FM/AM Stereo Receiver



A high-performance receiver with many extra features, well endowed in both the power-amplifier and FM sections, the SA-5250 is worthy of being the heart of a fine stereo system. Power output exceeds the manufacturer's minimum requirement for most of the power-hungry, low-efficiency speakers popular today. Tuner sensitivity is excellent, and it is not achieved at the sacrifice of low distortion, selectivity or some other desired specifications in the FM circuit. AM performance also receives careful attention, as it should. In fact, there are some desirable features—like Technics' innovative "Flat Group Delay" filters in the FM IF section and PLL FM stereo MPX circuitry—that cannot be found in most other receivers at this price range.

Solid Speaker-Driving Power

The SA-5250 has generous output for the heart of your stereo system. It

delivers 26 watts per channel into 4 ohms from 20 Hz to 20 kHz (both channels driven). (At 1,000 Hz, this figure rises to 34 watts per channel into 4 ohms.)

Rugged Power Supply

No amplifier can be better than its own source of power. An ample, newly designed power transformer is capable of handling more than the demands that will be made on it by the amplifier. A bridged rectifier circuit helps assure excellent regulation. A 4,700-microfarad electrolytic capacitor in each side of the supply not only contributes to the excellent regulation, but also helps keep hum and noise low, and improves power availability at the low-frequency end, where it is most often needed.

Sophisticated Amplifier Design

Like every Technics receiver ever made, the SA-5250 employs direct-coupled OCL (output capacitor-less) design. This

helps assure solid power output and high damping factor not merely in the midrange around the rated frequency of 1,000 Hz, but also extending into the range of the lowest audible frequencies. This assures clean, well-defined bass with plenty of punch and freedom from blurring. Stable performance is enhanced by a differential amplifier in the first stage. Pure complementary circuit design is used for low distortion.

Dual Speaker Protection System

The care used in component selection and circuit design makes speaker-damaging failure most unlikely, but many audiophiles are nevertheless concerned about possible damage to their valued speakers in the event of amplifier failure or DC leakage through the direct-coupled output. To set their minds at rest, both an automatic electronic circuit with relays and fusing are used to safeguard speakers.

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Low-Distortion Tone Controls

Technics own method for tonal compensation is used in the SA-5250. Employing negative feedback in the power-amplifier section, it offers positive action while minimizing distortion. The bass control is adjustable ± 10 dB at 50 Hz; range of the treble control is ± 10 dB at 10 kHz.

Two Tape Monitors

Complete input/output terminals are provided for two tape decks, with front-panel pushbutton switches for monitoring of either one. Both may be activated at the same time for simultaneous copying of the same source material, or the user may dub from the Tape 1 to the Tape 2 position.

Mode Switch

Stereo or monophonic mode may be selected by a front-panel pushbutton.

Wide-Sweep Linear FM/AM Dial Scale

A wide tuning dial sweeps 8-5/8 inches (220 mm) across the front panel to facilitate smooth, easy tuning and easy viewing of settings. Both FM and AM scales are linearly spaced to enhance precise and effortless tuning.

FM IF with IC and "Flat Group Delay" Ceramic Filter

Of the six stages in the IF section (which include three differential amplifiers), three are direct-coupled and integrated into an IC for high reliability. In addition three 2-element ceramic filters, developed by and exclusively used in Technics FM circuits, are of the new Flat Group Delay type. Most quality IF filters tend to delay the desired IF signals that pass through them. Some frequencies are delayed more than others, and the time relationship of different components in the total sound signal is thus disturbed.

In effect, this is a form of phase shift that shows up as rounding and ringing in square-wave and tone-burst tests, as well as in conventional distortion measurements. In addition to distortion, the timing changes produce confusion in channel definition and sound-source localization.

With Flat Group Delay filters, although the inevitable delay is still introduced, it is the same for all frequencies in the normal IF band-width. This preserves time relationships and enhances the clarity, transparency and definition of FM stereo sound.

Sensitive 3-Gang FM Tuning

The Technics-developed 4-pole dual-gate MOS FET is used in the front end for high sensitivity and selectivity. In combination with a 3-gang variable tuning capacitor for FM, this results in a selectivity figure of 70 dB and a high IHF sensitivity of 1.9 microvolts. Furthermore, the sharp knee of the sensitivity curve helps assure noise-free listening (e.g., full limiting) with less signal input than other designs rated at the same sensitivity, resulting in high actual sensitivity.

FM Muting Switch

When engaged, this switch helps eliminate annoying inter-station hiss as you tune from one station to another. Its smooth action avoids the momentary harsh noises heard on some muting circuits as they change from the mute/non-mute condition. Mute action may be defeated for reception of distant, marginally receivable stations.

FM MPX Section with PLL IC

In stereo FM, PLL (Phase Locked Loop) circuitry maintains precise phasing between the pilot signal and the subcarrier. This results in low distortion

and the maintenance of superior separation throughout the entire spectrum of audible sound. In addition, the PLL circuit helps maintain stable performance despite changes in temperature, humidity and the passage of time. It has been incorporated into a high-reliability IC that replaces 57 transistors and 4 diodes.

FM MPX Output Terminal

A convenient back-panel jack permits ready connection for the adapter that will be needed for reception of discrete 4-channel broadcasts of the future. The jack may also be used for SCA reception.

Quality AM Section with IC

The AM section of many other good stereo receivers is often a neglected "me too" circuit that falls short of the quality of some portable receivers. We of Technics feel that, when the owner of a good high-fidelity system turns to AM listening for any reason, he is entitled to the reasonable sound quality of which AM, at its best, is indeed capable. Although the results cannot match FM, in any case, the SA-5250 boasts of both ceramic elements and an LC filter in the IF circuit, along with a precise and stable IC incorporating most of the important circuitry. The result is better sensitivity, noise figure and interference rejection than found in perfunctory "add-on" AM sections.

Loudness Switch

At lower listening levels, sensitivity of the human ear to low-frequency sounds tends to fall off, throwing the bass out of balance. With the loudness switch engaged, up to 10 dB of boost is applied at 50 Hz, depending on the setting of the volume control, to restore a natural balance.

Technical Specifications (DIN 45 500)

AMPLIFIER SECTION

1 kHz continuous power	
both ch. driven, 4 Ω	2 $\times$ 34 W
8 Ω	2 $\times$ 27 W
20 Hz ~ 20 kHz continuous power	
both ch. driven, 4 Ω	2 $\times$ 26 W
8 Ω	2 $\times$ 23 W
Power bandwidth	
(both ch. driven at 4 Ω)	
7 Hz ~ 35 kHz, -3 dB	
Total harmonic distortion	
(rated power at 1 kHz, 4 Ω)	0.5%
Intermodulation distortion	
rated power at	
250 Hz; 8000 Hz = 4:1, 4 Ω	0.7%
Damping factor	20 (8 Ω)
Input sensitivity & impedance	
PHONO	2 mV/50 k Ω
AUX, TAPE 1, 2 PLAYBACK	180 mV/40 k Ω

TAPE 1 REC/PLAY input	180 mV/40 k Ω
S/N rated power	
PHONO	60 dB (IHF A, 70 dB)
AUX	80 dB (IHF A, 90 dB)
50 mW power output	
PHONO	50 dB
AUX	55 dB
Frequency response	
6 Hz ~ 60 kHz, +1, -3 dB	
(IHF PHONO: RIAA standard curve	
± 0.5 dB AUX: 6 Hz ~ 60 kHz,	
+1, -3 dB)	
Tone control	
BASS	50 Hz, +10 dB ~ -10 dB
TREBLE	10 kHz, +10 dB ~ -10 dB
Loudness control	
(volume at -30 dB)	50 Hz, +10 dB
Output voltage	
TAPE 1, 2 REC OUT	180 mV
TAPE 1 REC/PLAY output	30 mV

FM TUNER SECTION

Frequency range	88 ~ 108 MHz
Sensitivity at ± 40 kHz deviation	(IHF 1.9 μ V)
S/N 30 dB, 300 Ω	1.8 μ V
S/N 20 dB, 300 Ω	1.5 μ V
S/N 30 dB, 75 Ω	1.3 μ V
S/N 20 dB, 75 Ω	1.0 μ V
Total harmonic distortion	
(400 Hz, 100% modulation)	
Stereo 0.4%, Mono 0.3%	
S/N at ± 40 kHz deviation	
Stereo 52 dB, Mono 54 dB (IHF 70 dB)	
Frequency response	
20 Hz ~ 13 kHz, ± 1 dB	
Alternate channel selectivity	70 dB
Capture ratio	1.6 dB
Image rejection at 98 MHz	50 dB
IF rejection at 98 MHz	70 dB
Spurious response rejection	

at 98 MHz	65 dB
AM suppression	50 dB
Stereo separation	
1 kHz 40 dB, 10 kHz 30 dB	
Leak carrier	-45 dB
Limiting point	1.0 μ V
Bandwidth IF amplifier	220 kHz
FM demodulator	820 kHz
AM TUNER SECTION	
Frequency range	520 ~ 1610 kHz
Sensitivity	30 μ V, 250 μ V/m
Selectivity	25 dB
Image rejection at 1000 kHz	45 dB
IF rejection at 1000 kHz	40 dB
GENERAL	
Power consumption	270 W
Power supply	110V/120V/220V/240V
Dimensions (W $\times$ H $\times$ D)	
	420 $\times$ 140 $\times$ 355mm
Weight	8.3 kg



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Matsushita Electric