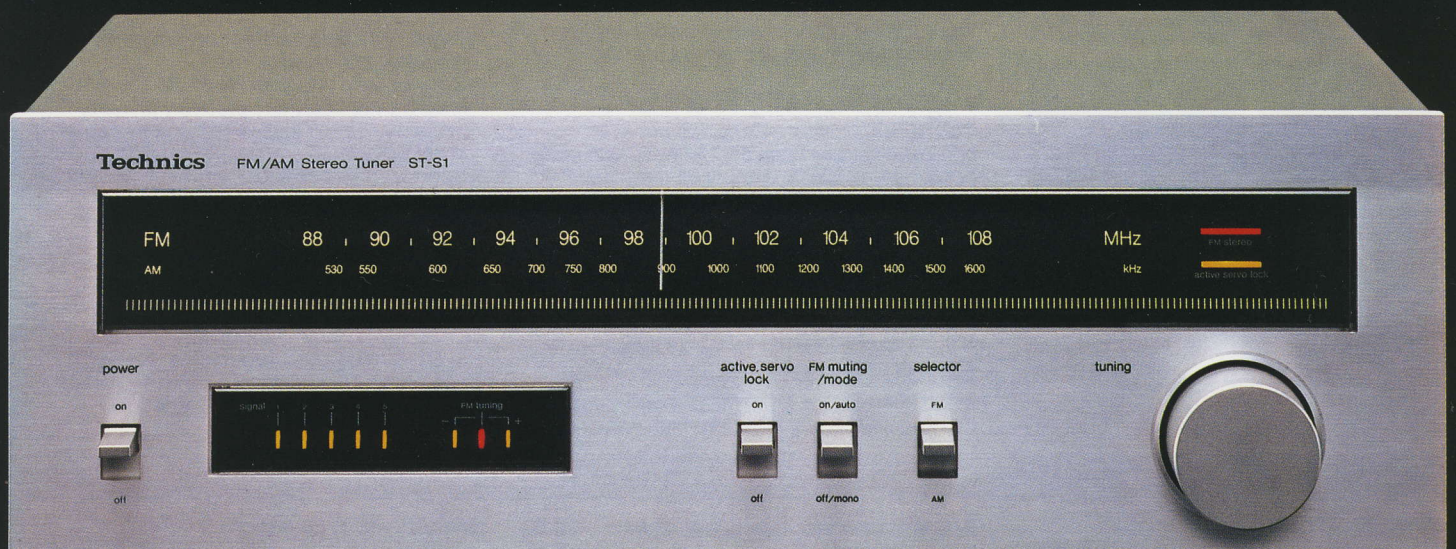


Technics

ST-S1/S1L

FM/AM Stereo Tuner



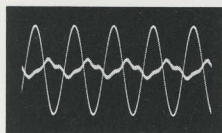
ST-S1/S1L FM/AM Stereo Tuner

Accurate tuning is requirement for high-fidelity reception in any FM tuner. If the tuning is off just a bit, there is an increase in distortion, and a decrease in stereo separation. With the ST-S1/S1L, the method of accurately tuning to a station is unusually precise. Instead of needle-type mechanical meters, which are usually used to indicate signal strength and center-of-channel tuning, the ST-S1/S1L employs responsive and easy-to-read LEDs (light emitting diodes). Once you've tuned in a station, the active servo lock will keep it from drifting despite temperature and humidity changes.

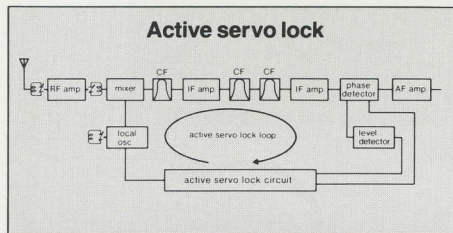
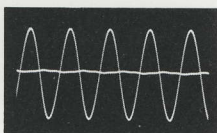
Active Servo Lock

One way to prevent frequency drift and its accompanying distortion is to "lock" the local oscillator. But with this approach, the IF stage and FM discriminator cannot respond to temperature changes, which occur as the tuner "warms up," and other varying conditions. The Active Servo Lock in this tuner, however, does maintain precise center-of-channel tuning under these conditions. It prevents frequency drift not only in the local oscillator but also in the IF stage and FM discriminator. Another advantage of the Active Servo Lock—even a hasty or careless setting of the dial is usually sufficient to tune in the station accurately. Normally you would have to position the center-tuning meter rather carefully for low distortion and good stereo separation; but with the Active Servo Lock you can tune within ± 75 kHz on either side of the station's frequency. The Active

Increased crosstalk with Active Servo Lock OFF



Minimum crosstalk with Active Servo Lock ON



Servo Lock is then activated three seconds after the tuning LEDs light up, and at the same time, the "Servo Lock" indicator light switches on. Just tune the ST-S1/S1L to the general area of the station and the Active Servo Lock does the rest. If for any reason you want to defeat the Servo Lock, you can do so by pressing a switch.

5 LEDs Indicate Signal Strength

The number of LEDs lit indicate signal strength in a linear progression. One LED lit means that the signal is very weak and is barely being picked up by the tuner. Two LEDs mean that the station is weak and the program material will be difficult to hear. With three LEDs the quality of the sound will not be very good, but speech can be readily understood and music will be listenable. Four LEDs: the signal is strong enough for good musical fidelity. Five LEDs: strongest possible reception with this tuner.



3 LEDs FM Center Tuning Indicators

Three direction-indicating LEDs help you to tune accurately and easily without the usual center-of-channel meter. When no FM station is being received, these LEDs are not lit. As the dial is turned toward a station, either the left or right LED lights up, indicating which direction you should move to fine-tune the station. When the station is perfectly tuned, only the center LED is lit.

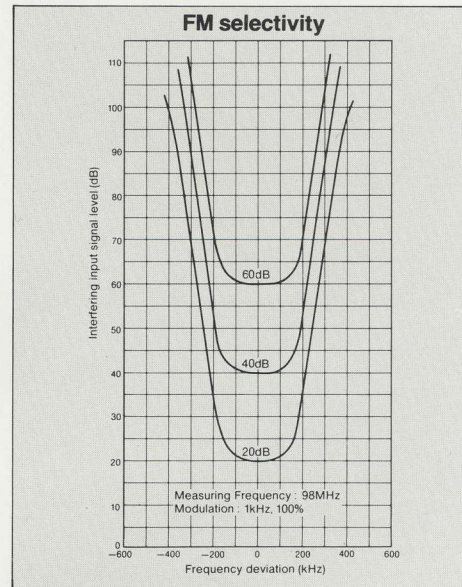
High-Sensitivity Front End

The RF stage benefits from, among other components, a junction FET for good selectivity, sensitivity, image, and spurious rejection. Tuning is accomplished with a precision 3-ganged variable tuning capacitor. The figures indicate the high-sensitivity of this tuner: usable sensitivity is $1.9\mu\text{V}$ (300Ω). The more important 46 dB quieting sensitivity is $25\mu\text{V}$ (75Ω).

High S/N Ratio and Wide, Stable Separation

In the IF stage, the ST-S1/S1L uses three flat-group-delay ceramic filters for high selectivity

and a five-stage differential amplifier with excellent limiting characteristics. Selectivity is 75 dB; the signal-to-noise ratio is 75 dB, and separation is a wide 45 dB at 1 kHz. MPX decoding is accomplished with a PLL (phase locked loop) circuit incorporated into a single IC.



Other Features

- Provided LW reception as well as any standard MW reception.
- Quadrature detector for wide, flat frequency response and low distortion.
- Easy-to-read 220 mm dial scale. The tuning knob moves freely and precisely primarily because of its oil-less sleeve and fluororesin-coated dial rope.
- Special muting circuit to reduce "pop" noises when detuning.
- FM auto/mono switch and FM muting to eliminate inter-station noise.
- High-quality AM section with 2-ganged variable capacitor and ceramic filter.

Technics FM/AM stereo tuner, Model ST-S1/S1L, has the features, performance and dimensions to make it a perfect match for our new class A amps.

Technical Specifications (DIN 45 500)

FM TUNER SECTION

Frequency range	88~108 MHz
Sensitivity	
S/N 30 dB	$1.9\mu\text{V}$ (300Ω), $1.3\mu\text{V}$ (75Ω)
S/N 26 dB	$1.7\mu\text{V}$ (300Ω), $1.2\mu\text{V}$ (75Ω)
S/N 20 dB	$1.5\mu\text{V}$ (300Ω), $0.9\mu\text{V}$ (75Ω)
IHF usable sensitivity	$1.9\mu\text{V}$ (IHF '58)
IHF S/N 46 dB stereo quieting sensitivity	$25\mu\text{V}$ (75Ω)
Total harmonic distortion	
MONO	0.15%
STEREO	0.3%
S/N	
MONO	69 dB (75 dB, IHF)
STEREO	65 dB (70 dB, IHF)
Frequency response	20 Hz~15 kHz, +0.5 dB, -1.5 dB
Alternate channel selectivity	75 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	55 dB
IF rejection at 98 MHz	85 dB

Spurious response rejection at 98 MHz	80 dB
AM suppression	55 dB
Stereo separation	
1 kHz	45 dB
10 kHz	35 dB
Carrier leak	
19 kHz	-30 dB (-35 dB, IHF)
38 kHz	-48 dB (-50 dB, IHF)
Channel balance	
250 Hz~6300 Hz	± 1.0 dB
Limiting point	$1.2\mu\text{V}$
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	300Ω (balanced) 75Ω (unbalanced)

AM TUNER SECTION

Frequency range	
MW	525~1605 kHz
LW (ST-S1L)	145~350 kHz

Sensitivity (S/N 20 dB)	
MW	$30\mu\text{V}$, $300\mu\text{V/m}$
LW (ST-S1L)	$30\mu\text{V}$
Selectivity (± 9 kHz)	
MW	27 dB
LW (ST-S1L)	35 dB
Image rejection	
MW	50 dB (1000 kHz)
LW (ST-S1L)	40 dB (250 kHz)
IF rejection	
MW	40 dB (1000 kHz)
LW (ST-S1L)	40 dB (250 kHz)
GENERAL	
Output voltage	0.3 V (0.6 V, IHF)
Power consumption	18 W
Power supply	AC 110/120/220/240 V 50/60 Hz
Dimensions (W×H×D)	430×142×251 mm (16-15/16"×5-19/32"×9-7/8")
Weight	3.8 kg (8.4 lb)

Technics
Matsushita Electric