4-CHANNEL RECEIVER SANSUI QRX3000

SANSUI QRX-3000 4-CHANNEL RECEIVER Economy *is* possible in a quality 4-channel receiver. If you doubt it, please go ahead and compare the outstanding performance specs of this full-fledged 4-channel receiver with those claimed for other models. You'll agree that the Sansui QRX-3000 is absolutely the best buy in its price range today. This versatile and solid 4-channel receiver features the very same QS regular matrix system as our other highly acclaimed 4-channel receivers. This economical version is slightly less powerful, that's all. It delivers IHF music power of 100 watts into 4 ohms, total harmonic distortion of 0.5%, IHF power bandwidth of 20—30,000Hz, phono hum and noise of better than 70dB, and IHF FM sensitivity of 2.5μV. Sansui's new QS regular matrix system with its exclusive Vario-Matrix circuit, discussed in detail overleaf, is the QRX-3000's most outstanding feature, of course. Its function is triple, and very important: It decodes all regular matrix 4-channel records to reproduce a natural 4-channel sound field of richly enhanced inter-channel separation, AND transforms conventional 2-channel stereo program sources into authentic 4-channel sound, more effectively than ever with the help of the newly-developed, exclusive 2-4 Synthesizer Encoder. Adding an ingenious circuit to the Vario-Matrix in the QRX-3000 enables you to enjoy all SQ records with ideal results, taking advantage, as it does, of Sansui's own front-rear logic designed into the Vario-Matrix technique. Its no-compromise versatility is apparent in the full array of input and output jacks, and front and rear panel controls and switches allowing you to connect and control a full assortment of today's 4-channel and 2-channel program sources. For instance it handles *two* 4-channel tape decks with complete in/out, tape-to-tape reprint, and monitoring, as well as another 4-channel AUX program source. If you are a budget-conscious audiophile and if 100-watt music power is enough to fill your listening room (it is for *most* rooms, you know), then the QRX-3000 is for you. Despite its accessible price, it is without question the most spectacular value in medium-priced 4-channel receivers today.

Sansui

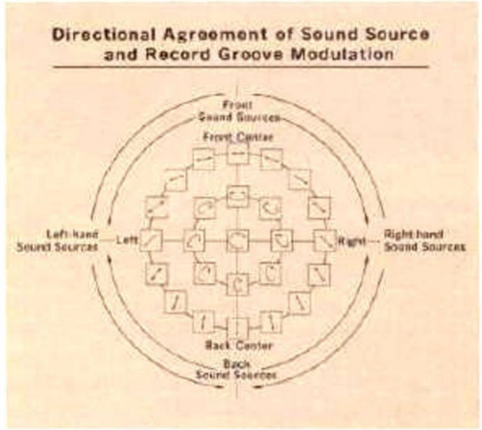
The Sansui QRX-3000 with Vario-Matrix: Full Capability to Reproduce Any 4-channel Sound Source

THE QS REGULAR MATRIX SYSTEM

The QS regular matrix 4-channel system incorporated in Sansui's QRX-3000 reproduces the *total acoustic information* present in any live situation—including all the direct sounds as well as the indirect sounds, and even the delicate reverberation. With this capability the QS system approximates with startling reality the original sound field right in your own music listening room. The QS regular matrix system consists of a square 4-channel matrix and ±90-degree phase shifters. Their function is then greatly enhanced by another exclusive, the QS Vario-Matrix circuitry that provides for excellent inter-channel separation.

SQUARE MATRIX

As designated in the terminology of 4-channel stereo, the matrix is an electronic *logical* network designed to encode four separate signals into two, and decode these two signals back into four. Of greater significance, the matrix employed in the QS regular matrix system is a square matrix that is rotationally symmetrical and circumferentially uniform. This gives it a number of very important technical advantages: 1) It does not lose or mislocate any part of the original sound field information through the encode-decode process; 2) It provides for excellent inter-channel separation; 3) It gives an outstanding "surround" 4-channel effect by giving equal emphasis to signals originating from any point in a full 360° circle (see illustration); 4) It does not deteriorate the current standards of hi-fi sound reproduction at all.

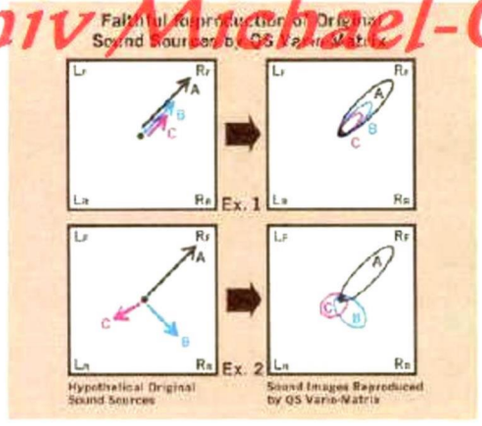


PLUS/MINUS 90-DEGREE PHASE SHIFTERS

As with any 4-channel matrix system, the square matrix puts the two rear signals out of phase with each other. This is easily rectified by what is called a phase shifter circuit, placed after the matrix, that phase-shifts the right rear signal by plus 90 degrees from the front signal and the left rear signal by minus 90 degrees.

VARIO-MATRIX CIRCUIT

Sansui's latest 4-channel innovation adds a distinguished finishing touch to the QS regular matrix system. It is made possible by the various psycho-acoustic phenomena of the human hearing mechanism, especially the "directional masking." Non-technically speaking, our ears are such that when sounds of different loudness arrive simultaneously from different directions, the quietest sound is "masked" by the loudest sound, and, naturally, the ears become insensitive to the direction from which it came. We know that this happens whenever there is a difference of 10dB or so in loudness among those sounds. The QS Vario-Matrix simply controls the matrix parameter from moment to moment so as to increase the separation of the loudest sound in proportion to the difference in loudness. This approach, by the way, is entirely different from the complex "gain control" approach, and ensures that the quantity of the original sound field information is kept completely intact in reproduction. The QS Vario-Matrix thus provides for almost infinite inter-channel separation in principle, and Sansui has enhanced it by setting the value for optimum separation to the ears from the valid standpoint of music reproduction.



NEW QS SYNTHESIZER

The QS Synthesizer employed by Sansui in the QRX-3000 is highly significant since it lets you enjoy your present collection of stereo records and tapes, as well as FM stereo broadcasts, in the immensely richer and more satisfying 4-channel format. This QS Synthesizer has an exclusive 2-4 Synthesizer Encoder that "pre-processes" 2-channel signals for optimum conversion into 4-channel.

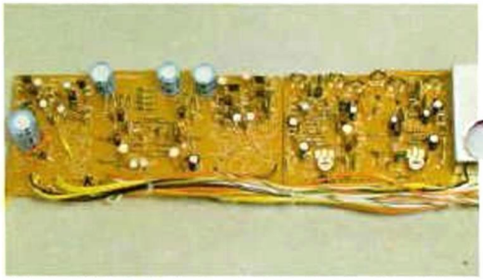
PHASE MATRIX

Another new feature of the QRX-3000 is the Phase Matrix. This is actually an extra circuit added to the QS Vario-Matrix to fully exploit Sansui's own front-rear logic included in the latter. The result of this circuitry is that you can decode all disc records made with the CBS SQ 4-channel system with stunning front-rear separation.

QS SYNTHESIZER DECODER SECTION

1 CONVENIENT FUNCTION CONTROL

The QRX-3000 is equipped with Sansui's 6-position function control center. The easy-to-use, click-stop control handles all of the following reproduction modes:



Two channel This position allows you to hear all conventional 2-channel program sources in the normal 2-channel mode, with sound coming from the front two speaker systems only.

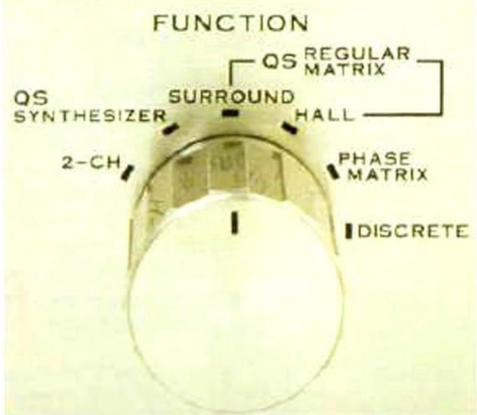
QS synthesizer Here, conventional 2-channel program sources are converted into really 4-channel sound.

QS regular matrix-surround The Square Matrix construction of the QS regular matrix surround allows a recording engineer to place a sound source—such as voice or instrument—in any desired position, and this mode lets you hear what he intended you to hear. Best for hearing popular music mood music, Moog sound, R & B and live recordings.

QS regular matrix-hall This function mode position allows you to enjoy all the richness of the original concert hall performance. Best for reproducing orchestras and big bands, jazz, etc. Front 2-2 system of speaker positioning produces best results.

Phase matrix Records and tapes or stereo FM broadcasts of such sources made with the CBS SQ-system can be enjoyed in full 4-channel sound in this function mode position.

Discrete This position is for all 4-channel discrete program sources, such as 4-channel open reel tapes, discrete 4-channel discs or 8-track tape cartridges.



AMPLIFIER SECTION

2 WIDE DYNAMIC RANGE, LOW NOISE EQUALIZER

The QRX-3000 uses a two-stage direct-coupled negative feedback design employing top-quality, low-noise silicon transistors. There's no cost-cutting here, for such select materials assures a wide dynamic range, high signal to noise ratio and high linearity to keep deviations from the RIAA curve to a minimum.

3 LOW/HIGH FILTERS & NEGATIVE FEEDBACK TONE CONTROLS

Bass and treble tone controls are the negative feedback type employing hand-picked silicon transistors for maximum signal to noise ratio. Precision handling of the full range of sound is possible with these click-stop, front and rear separated controls. There are also high and low filter switches to eliminate low rumble and high-range hiss when necessary.

4 LOUDNESS CONTROL

To compensate for the shortcoming of the human hearing mechanism, this control enables you to hear properly emphasized high and low frequencies even when overall volume is at a sub-normal level.

5 SEPARATE FRONT & REAR LEFT/RIGHT BALANCE CONTROLS, FRONT/REAR BALANCE CONTROL

Optimum 4-channel sound can be enjoyed from any point in a room by simply adjusting these continuous balance controls.

6 SEPARATE FRONT & REAR HEADPHONE JACKS

Private listening to either 4-channel or 2-channel sound is made possible by two separate headphone jacks on the front panel.

7 5-POSITION PROGRAM SELECTOR

Any of five different program sources can be selected with this control. They are; 1) PHONO, 2) FM AUTO, 3) FM MONO, 4) AM, and 5) 4CH AUX.

8 TAPE RECORD/PLAYBACK CIRCUITS

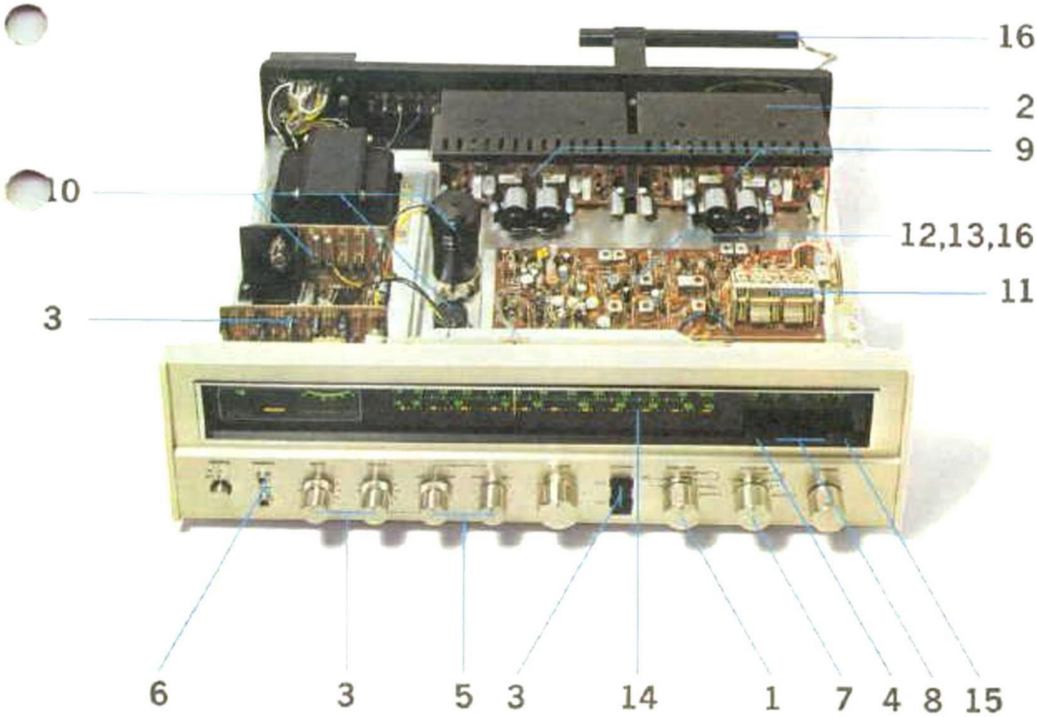
There are no less than three tape record/playback circuits in the QRX-3000—two for 4-channel, one for 2-channel. Together they enable such tape recording versatility as: 1) 2-channel recording, and playback of 2-channel tapes in either 2-channel or synthesized 4-channel stereo; 2) copying (reprinting) a 2-channel recorded tape from one tape deck to another; 3) ordinary 4-channel recording and playback (2-channel tapes can be played on a 4-channel tape deck without changing the tape deck connections); 4) copying (reprinting) a recorded 4-channel tape from one tape deck to another.

9 SEMI-COMPLEMENTARY ITL/OTL POWER AMPLIFIER

The advanced semi-complementary ITL/OTL power amplifier gives your speakers with power to spare, exceptional stability and low total harmonic distortion.

10 STABILIZED POWER SUPPLY CIRCUIT

Unexcelled stability is achieved because of the constant-voltage design in the power supply circuit of the QRX-3000.



TUNER SECTION

11 MOS FET-EQUIPPED SENSITIVE FM FRONTEND

The FM frontend of the QRX-3000 4-channel receiver combines an expensive dual-gated MOS FET known for its very low noise figure, with a frequency-linear super precision 3-gang variable capacitor in its FM amplifier stage. It gives the FM tuner the best in working sensitivity as it is combined with the advanced oscillator/mixer stages using four carefully chosen low-noise silicon transistors.

12 IC & CERAMIC FILTER IF AMPLIFIER

Two bi-resonator ceramic filters and an IC combine with a discriminator transformer of exceptional linearity (peak-to-peak 1.1MHz) to give the FM tuner outstanding IF characteristics. This is exemplified by its selectivity of 50dB, signal to noise ratio of 60dB and capture ratio of 2.5dB.

13 FM MULTIPLEX DEMODULATOR

A carefully chosen pair of diodes with compatible electrical properties are employed in the switching circuit in the FM multiplex demodulator. This means increased stereo separation and reduced carrier leakage for steady, clean FM stereo reception.

14 WIDE DIAL WITH FM LINEAR SCALE

A frequency-linear 4-gang variable capacitor in the FM frontend makes it possible to fit the tuner with a wide lateral dial with a linear FM scale evenly graduated from 88MHz to 108MHz in steps of 250kHz each. It has a bright, self-lighted dial pointer, a dial mechanism ensures smooth operation and an oversized signal-strength meter indicates perfect tuning.

15 OTHER FEATURES

This FM tuner has a built-in FM-muting circuit to eliminate harsh inter-station noise commonly heard during FM tuning. And an FM de-emphasis switch enables you to select FM de-emphasis characteristics between 50μsec and 75μsec so that the FM signal is reproduced accurately from all stations wherever you live.

16 SENSITIVE AND SELECTIVE AM TUNER

Ordinary AM radio broadcasts are pulled in at full strength by this exceptionally clean AM tuner. It has a delicate sensitivity to distant stations and a high selectivity by using a Jaumann type filter in the AM IF amplifier stage. This filter combines a newly-developed wide-band coil and a bi-resonator ceramic filter. And finally, your AM listening pleasure is always trouble free thanks to a large, space-wound ferrite bar antenna.

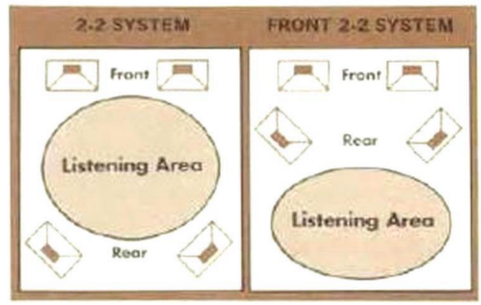
SELECTING AND POSITIONING SPEAKER SYSTEMS

A little knowledge about speaker placement and a little experimentation will go a long ways toward providing you with the finest 4-channel sound reproduction possible. Always try to choose four identical speakers. For best results, use speaker systems especially designed for broad sound dispersion.

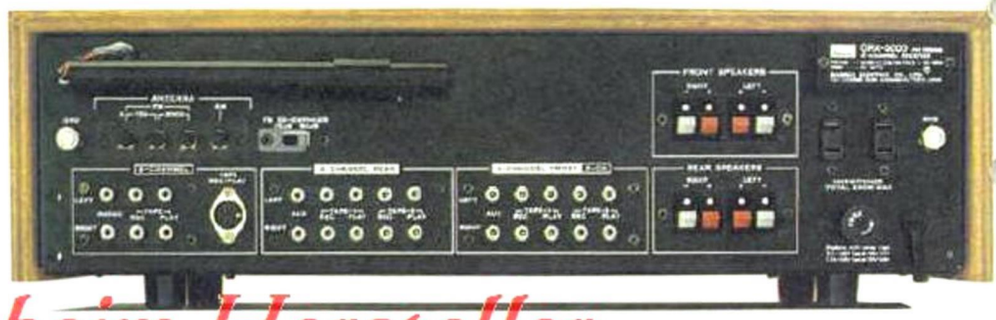
Basically, there are two common—and recommended placement systems, which we've illustrated below.

2-2 SYSTEM: Regular 4-corner position widely accepted as "standard." Ideal for the rich surround effect.

FRONT 2-2 SYSTEM: Moves the rear speaker systems up front. Best for the concert hall effect, it recreates the stage in front of you and the ambience of the hall around you.



SPECIFICATIONS

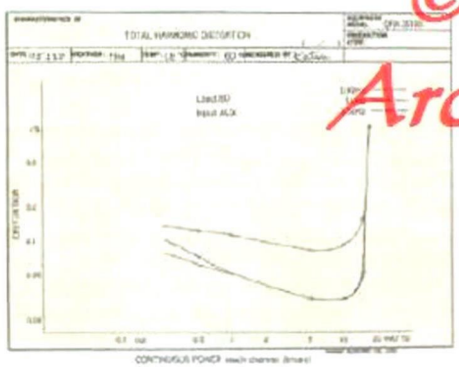


AMPLIFIER SECTION

POWER OUTPUT (at rated distortion)

MUSIC POWER (IHF)	100 Watts	into 4Ω
	76 Watts	into 8Ω
CONTINUOUS RMS POWER (1kHz, each channel driven)	19 Watts×4	into 4Ω
	15 Watts×4	into 8Ω
CONTINUOUS RMS POWER (1kHz, four channels driven)	8 Watts×4	into 8Ω

TOTAL HARMONIC DISTORTION less than 0.5% at rated output.



INTERMODULATION DISTORTION less than 0.5% at rated output. (70Hz : 7,000Hz=4:1 SMPTE method)

POWER BANDWIDTH (IHF) 20Hz to 30,000Hz

LOAD IMPEDANCE 4 to 16Ω

DAMPING FACTOR approximately 30 at 8Ω load

INPUT SENSITIVITY AND IMPEDANCE (1kHz, for rated output)

PHONO	2.5mV	50kΩ
Max. input capability more than 100mV RMS (at rated distortion)		
AUX	150mV	50kΩ
TAPE MONITOR (pin)	150mV	50kΩ
(DIN)	150mV	50kΩ

RECORDING OUTPUT

(pin)	150mV
(DIN)	30mV

FREQUENCY RESPONSE (at 1 Watt output)

from AUX	30 to 30,000 Hz +1.5 dB, −1.5dB
EQUALIZATION	RIAA Curve (30 to 15,000Hz ±1dB)
CROSSTALK (at rated output, 1kHz)	better than 45dB

HUM AND NOISE (IHF)

PHONO	better than 70dB
AUX	better than 75dB

CONTROLS

BASS	+12dB, −12dB at 50Hz
TREBLE	+12dB, −12dB at 15,000Hz
LOUDNESS	+8dB at 50Hz, +3dB at 10,000Hz

FILTERS

LOW	−10dB at 50Hz (6dB/oct)
HIGH	−10dB at 10,000Hz (6dB/oct)

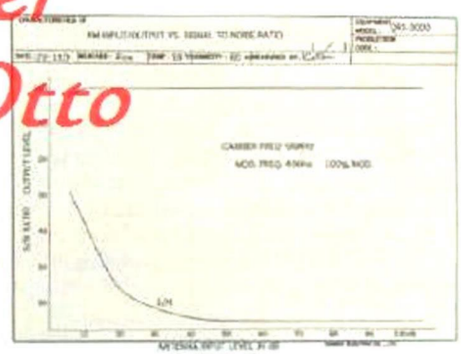
SYNTHESIZER/DECODER SECTION

QS regular matrix system with Vario-Matrix circuit.

TUNER SECTION

FM:

TUNING RANGE	88 to 108MHz
SENSITIVITY (IHF)	2.5μV
TOTAL HARMONIC DISTORTION	
MONO	less than 0.5%
STEREO	less than 0.8%
SIGNAL TO NOISE RATIO (MONO)	better than 60dB
CAPTURE RATIO (IHF)	less than 2.5dB
IMAGE REJECTION	better than 45dB
IF REJECTION	better than 60dB
SPURIOUS RESPONSE REJECTION	better than 60dB
SELECTIVITY	better than 50dB
STEREO SEPARATION	better than 35dB at 1,000Hz
FREQUENCY RESPONSE	30 to 12,000Hz +1dB, −2dB
ANTENNA IMPEDANCE	300Ω balanced, 75Ω unbalanced



AM:

TUNING RANGE	535 to 1605kHz
SELECTIVITY	better than 25dB
SENSITIVITY (Bar antenna)	50dB/m
IMAGE REJECTION	better than 80dB/m at 1,000kHz
IF REJECTION	better than 80dB/m at 1,000kHz

SEMICONDUCTORS 88 Transistors, 50 Diodes, 3 FET's, 1 IC, 1 Zener Diode

POWER REQUIREMENTS

VOLTAGE	100, 117, 220, 240V
CONSUMPTION	62 Watts (rated), 110VA (max.)

DIMENSIONS 140mm(5⅝")H ×505mm (19⅞") W×330mm(13")D

WEIGHT 11.5kg (25.4 lbs.) 14.0kg (30.9 lbs.) (packed)

Design and specifications subject to change without notice for improvements.

SANSUI ELECTRIC CO., LTD. 14-1, 2-CHOME, IZUMI, SUGINAMI-KU, TOKYO 168, JAPAN/TELEPHONE: 323-1111/TELEX: 232-2076
SANSUI ELECTRONICS CORPORATION 55-11 QUEENS BLVD. WOODSIDE, NEW YORK 11377, U.S.A./TELEX: NEW YORK 422633 SEC UI
SANSUI AUDIO EUROPE S.A. DIACEM BUILDING, VESTINGSTRAAT 53-55, 2000 ANTWERP, BELGIUM/TELEX: ANTWERP 33538

Sansui

Printed in Japan (23003K)