Digital Frequency Synthesizer
FM Stereo Tuner

card programmed digital frequency synthesizer tunes instantly and precisely to center of desired channel, takes the effort and guesswork out of station tuning.
tuner comes with full set of program cards for every one of the 100 FM channels between 88.1 and 107.9 MHz.
convenient front panel storage keeps cards easily available for channels used most frequently.

frequency spectrum may also be manually scanned in either mono or stereo mode with same speed and precision.
quartz crystal reference standard limits drift to less than one-third that allowed broadcast stations by the FCC.
large, easy to read digital display simplifies viewing even from across the room.
dual meters for signal strength and multipath distortion instantly indicate antenna direction problems.
FM digital frequency synthesizer stereo tuner

description
The Scott 433 Tuner is a completely new approach to FM station tuning. Gone are the multigang variable tuning capacitor, the tuning dial, cord and knob. In their place is a digital frequency synthesizer, actually a small, special purpose, card programmed digital computer made of integrated circuits. A set of 100 program cards is supplied with the tuner, one for each of the 100 FM channels in the band from 88.1 to 107.9 MHz. The user selects one of the deck of cards these stations of interest in the listening area and places them in the storage slot below the card reader. (The rest of the deck is set aside in case the owner moves to a new locale.)

After the tuner has been turned on, a card is inserted into the card reader. The tuner instantly synthesizes that frequency, tunes automatically to the precise center of that broadcast channel and reads out the frequency on the front panel digital display. (There are other tuners which use digital displays to read out the frequency, but these are, for the most part, conventional tuners which do not offer the advantages of the digital frequency synthesizer.)

In addition to card programmed station selection, the tuner can also be instructed to automatically scan the entire frequency spectrum, stopping when it reaches a channel with an acceptable signal. A push of the scan bar starts it moving again looking for the next acceptable signal, and so on, until a desired channel is reached. Manual scanning is also possible at a scan rate variable from 3 to 20 channels per second.

Once tuned to a channel, the 433 tuner stays on that channel with an accuracy not obtainable from conventional tuners, even those having AFC. Because the 433 tuner has its own self-contained quartz crystal frequency reference standard, its drift during the warmup period is less than 600 Hz and less than 150 Hz over a subsequent 24 hour period. By contrast, the FCC allows FM broadcasting stations to drift as much as 2,000 Hz from their assigned frequencies. Thus, the Scott 433 tuner operates well within professional standards.

The inclusion of separate meters for signal strength and multipath distortion allows the user to obtain an immediate indication of improper antenna positioning without switching.

Lights indicate whether the tuner is being used in the card program mode, whether a stereo signal is being received, and the Perfectune light indicates that a channel is tuned to its maximum signal strength, lowest distortion position.

The Scott 433 FM digital frequency synthesizer stereo tuner is designed for use with its companion piece, the Scott 490 Integrated Stereo Control Amplifier, 75 watts continuous power (RMS) per channel into 8 ohms. The 433 tuner may be used successfully with any high quality stereo amplifier.

tuner section
usable sensitivity IHF ............... 1.9 μV
sensitivity (within 3 dB of full quieting) .......... 6 μV
tuning range .......................... 88.1 to 107.9 MHz
signal to noise ratio at 100% modulation .......... 67 dB
harmonic distortion ................... 0.25%
frequency response .................. 50 Hz to 15 kHz
drift (warm-up) ...................... 600 Hz (0.0006%)
drift (24 hours at 25°C) .............. 150 Hz (0.00015%)
capture .................. 1.8 dB
selectivity .................. 75 dB
19 kHz pilot suppression ............ 60 dB
38 kHz sub-carrer suppression .... 100 dB
AM suppression ............ 70 dB
spurious response rejection .... 100 dB
image rejection ............ 75 dB
audio hum at 100% modulation .... 70 dB
muting .................. -70 dB
Stereo separation ............ 35 dB
phase lock acquisition time (adjacent) ........ 5 milliseconds
channel
phase lock acquisition time (card program) .... 40 milliseconds (worst case)
automatic scan speed .............. 3 channels per second
manual fast scan ............ 20 channels per second
manual slow scan ............ 1 channel per second
audio output ............ 2.5V

Controls
front panel
• on-off • muting • mode, mono-stereo • filter, in-out • scan mode selector • scan speed control • manual scan bar • card reader • card storage • function lights • separate meters for signal strength and multipath • digital display of station frequency • tape recorder output jack

rear panel
• 300 ohm antenna connector strip • 72 ohm antenna jack • antenna balun switch • stereo output jacks • scope output jacks • mono output jack • individual channel output level controls • power line fuse • unswitched accessory power outlet

dimensions
height .................. 6"
depth .................. 15"
shipping weight .......... 24 pounds
power line requirements 105-125 VAC, 60 Hz
power consumption at 117 VAC ........ 25 watts

Two-Year Parts and Labor Warranty
All H. H. Scott components and music systems are warranted against defects in material and workmanship for two years from the date of sale to the consumer. The unit must be delivered to and picked up from either an authorized Scott warranty service or the Customer Service Department, H. H. Scott, Inc., 117 Powdermill Road, Maynard, Massachusetts 01754.

This warranty covers repair and/or replacement of any part found by the manufacturer, or his agent, to be defective, including any associated labor cost.

The above warranty does not apply to (1) accessory parts explicitly covered by the field warranty of an original manufacturer; (2) units subjected to accidental damage or misuse in violation of instructions; (3) normal wear and tear; (4) units repaired or altered by other than authorized service agencies; and (5) units with removed or defaced serial number.

Modutron™ service policy
Should your Scott product ever require service after the free two-year warranty period, here's all you do:
Take or ship your component to a Scott warranty service station. Your unit will be electronically tested and the problem isolated. The warranty service station will exchange any defective board for a perfect one right from stock, or contact Scott for air shipment. Service is faster than ever before, and you pay only a nominal amount for trouble-shooting, any necessary alignment, and the standardized $10 exchange cost (or the equivalent in 1970 purchasing power) of a perfect factory-rebuilt Modutron circuit board, providing there has been no physical damage to the original board.

H. H. Scott, Inc., 117 Powdermill Road, Maynard, Mass. 01754

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