

DOPPLER RECEIVER

NEMS-CLARKE

TYPE
2501A

Nems-Clarke 2501A Doppler Receiver is designed as a sensitive, dependable and versatile instrument for measuring doppler shifts of AM and CW signals in the 55 to 260 mc band.

These receivers are employed extensively at satellite tracking stations. Use of the highest quality and conservatively rated parts and advanced circuitry throughout result in low noise figures across the band. Features include double conversion superheterodyne circuitry, automatic noise limiter, delayed and amplified automatic volume

control and carrier operated squelch circuits.

Any signal received may be compared with an externally generated reference signal injected at the reference input on the rear apron. In normal operation, this receiver is followed by a commercial phase lock tracking filter. The receiver is designed for standard rack mounting but can be bench mounted if adequate provisions for ventilation are made. The power supply is self-contained and operates from 117 vac, 60 cps with a power consumption of 70 watts.



CIRCUIT DESCRIPTION

Antenna input is to the first low noise, planar triode, RF amplifier, and reference input is to the ground-grid second RF amplifier, which permits comparison of the received signal with a known signal. The signal proceeds through conventional double conversion circuitry consisting of first mixer, 21.4 mc IF amplifier, second crystal controlled mixer and three 4.5 mc IF amplifiers. The BFO is a highly stable, modified Hartley circuit operating at the second IF frequency at 4.5 mc. The amplified AVC is applied ahead of the second mixer. The AVC circuit has been designed so that the manual gain control dominates on lower level sig-

nals and the AVC dominates on high level signals to prevent receiver overload. A switch is provided at the front panel to allow selection of operation with AVC or with manual gain control.

Demodulated signals from the diode detector pass through a shunt diode noise limiter and a series diode limiter. Squelch action is provided by a carrier operated relay. Two stages of audio amplification are provided. A specially designed output transformer supplies a balanced, ungrounded output of 600 ohms with a frequency response of 500 to 25,000 cycles, flat within 3 db. A phone jack on the front panel is provided for monitoring purposes.

Vitro ELECTRONICS
A DIVISION OF VITRO CORPORATION OF AMERICA

PRODUCERS OF **NEMS-CLARKE** EQUIPMENT

919 JESUP BLAIR DRIVE • SILVER SPRING, MARYLAND
SALES OFFICES - HOUSTON, TEXAS AND LOS ANGELES, CALIFORNIA

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TYPE 2501A

SPECIFICATIONS

Type Reception:
AM, CW

Tuning Range:
55 to 260 mc

Antenna Input Impedance:
50 ohms nominal

Reference Input Impedance:
50 ohms nominal

Noise Figure:
6 db max

IF Rejection:
70 db min

Image Rejection:
58 db min

IF Bandwidth:
50 kc min at 6 db

Sensitivity:
3 uv 30% amplitude modulated at 1000 cps for a
10 db s/n

Audio Output Impedance:
600 ohms balanced and ungrounded

Audio Power Output:
1 watt

Audio Response:
± 3 db 500 cps to 25 kc

AVC:
audio output held constant within 2 db with an
input change from 4 mv to 2 uv

Squelch Sensitivity:
(antenna input) 2 uv at max gain
(reference input) 700 uv at max gain

Noise Limiter:
automatically adjusts to carrier level, series
and shunt type

Power Input:
117 vac, 60 cps

Power Consumption:
70 w

Size:
19 × 8½ × 15 inches

Finish:
gray enamel, MIL-E-15090, color # 26329 Federal
Standard 595

