# Technical Data

DATA SHEET 171.50

## TYPES 701A AND 702A UHF RECEIVERS


TYPE 702A RECEIVER

The Types 701A and 702A Receivers were designed to meet the highest possible performance requirements for UHF receivers in critical reconnaissance work. They feature extremely low oscillator radiation, low noise, small size, light weight, and low power consumption.

Both receiver types tune the range of 235 to 1000 mc in two bands, and are identical except that the type 702A has a 50-kc bandwidth IF in addition to the 300-kc bandwidth IF and 2-mc bandwidth IF strips present in the type 701A. In either type receiver, the 2-mc bandwidth IF operates continuously and provides simultaneous AM and FM outputs.

The receivers are designed to handle either amplitude modulated, frequency modulated, or continuous wave signals. A beat frequency oscillator is provided for the reception of CW signals. Both receiver types are equipped with a transistorized carrier operated relay used to control external devices as a function of the received carrier level.

The receivers were designed using both solid state and vacuum (Nuvistor type) devices for compactness, efficiency, and high performance. Both units have a self-contained power supply and are constructed for mounting in a standard 19-inch rack. The panel height is only 3.5-inches.

SPECIFICATIONS

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|---|---|
| Type of Reception | AM, FM, and CW |
| Frequency Range | 235 to 1000 mc in two bands: Band A, 235-500 mc; Band B, 490-1000 mc |
| Dial Accuracy | ±1% |
| Fine Tuning | Front panel control provided for vernier tuning |
| Input Impedance | One input for each band at 50 ohms, type N connectors |
| Noise Figure | Band A, 10 db, maximum; Band B, 12 db, maximum |
| Image Rejection | Band A, 65 db, minimum; Band B, 75 db, minimum |
| I.F. Rejection | Band A, 80 db, minimum; Band B, 90 db, minimum |
| Oscillator Radiation at Antenna Input | Band A, 8 μv, maximum; Band B, 75 μv, maximum |
| Local Oscillator Frequencies | |
| First Local Oscillator | Incoming signal plus 60 mc |
| Second Local Oscillator | 81.4 mc, crystal controlled |

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| | |
|---|---|
| Intermediate Frequencies | 60 mc and 21.4 mc |
| I.F. Bandwidths | |
| Type 701A Receiver | 2 mc and 300 kc, operating simultaneously |
| Type 702A Receiver | 2 mc operating continuously, and either 300 kc or 50 kc, selectable from front panel |
| Sensitivity | |
| 2-mc Bandwidth | AM: 22 μv, modulated 50% at 1 kc rate, produces at least 10 db (s plus n)/n ratio.<br>FM: 24 μv, modulated at 1 kc rate with 750 kc deviation, produces at least 21 db (s plus n)/n ratio. |
| 300-kc Bandwidth | AM: 8 μv, modulated 50% at 1 kc rate, produces at least 10 db (s plus n)/n ratio.<br>FM: 8 μv, modulated at 1 kc rate with 100 kc deviation, produces at least 21 db (s plus n)/n ratio. |
| 50-kc Bandwidth (Type 702A only) | AM: 3.5 μv, modulated 50% at 1 kc rate, produces at least 10 db (s plus n)/n ratio.<br>FM: 4 μv, modulated at 1 kc rate with 15 kc deviation, produces at least 21 db (s plus n)/n ratio. |
| Output Stability | |
| 2-mc Bandwidth | AM: Output varies less than 4 db for an input range of 8 μv to 1 mv<br>FM: Output varies less than 4 db for input levels greater than 8 μv |
| 300-kc Bandwidth | AM: Output varies less than 4 db for an input range of 4 μv to 1 mv<br>FM: Output varies less than 2 db for input levels greater than 3 μv |
| 50-kc Bandwidth (Type 702A only) | AM: Output varies less than 4 db for an input range of 4 μv to 1 mv<br>FM: Output varies less than 2 db for input levels greater than 3 μv |
| Manual Gain Control Range | Greater than 100 db in AM/MAN and CW modes |
| Video Output | |
| 2-mc Bandwidth | AM: 0.7 volt, rms, across 93 ohms. Amplifier response, less than 3 db variation from 30 cps to 2 mc.<br>FM: 0.7 volt, rms, across 93 ohms. Amplifier response, less than 3 db variation from dc to 2 mc. |
| 300-kc and 50-kc Bandwidths | 5 volts, rms, across 10K ohms. Amplifier response, less than 3 db variation from 50 cps to 500 kc |
| Audio Output | 100 mw into 600 ohms. Amplifier response, 100 cps to 40 kc at 3 db points. |
| FM Deviation Sensitivity | |
| 2-mc Bandwidth | Less than 175-kc deviation produces 0.1 volt, rms |
| 300-kc Bandwidth | 50-kc deviation produces 5 volts, rms with max Video Gain |
| Beat Frequency Oscillator | Crystal-controlled at 21.4 mc; operates with 300-kc or 50-kc bandwidths in CW mode |
| Signal Monitor Output | 21.4 mc center frequency output signal provided for use with CEI Signal Monitors. |
| Front Panel Controls | Function: FM, AM/AGC, AM/MAN, CW; IF BANDWIDTH (Type 702A only): 300 KC, 50 KC; VIDEO GAIN; POWER: ON-OFF; AUDIO GAIN; Bandswitch; FINE TUNING; IF GAIN; COR SENSITIVITY; COR DELAY: FAST-SLOW; BFO TUNING |
| Meters | Tuning and Signal Strength |
| Carrier Operated Relay | |
| Sensitivity | Less than 1 μv |
| Range | Adjustable to operate over an input signal level range of 1 μv to greater than 500 μv |
| Release Time | Slow: 6 seconds, ±20%; Fast: less than 0.5 second |
| Output | SPDT contacts |
| Power Input | 115/230 volts, 50-400 cps |
| Power Consumption | 63 watts nominal |
| Weight | 21 lbs |
| Size | 3.5-inches high, 19-inches wide, and 15-inches deep |

PRICE: Type 701A- $3000.00
Type 702A- $3500.00

FOB Rockville, Maryland. Taxes extra where applicable. Price and specifications subject to change without notice.

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