

TUNABLE DEMODULATORS DMS-105A, DMS-105A-2, DMS-105R



DMS-105A SHOWN

FEATURES

The DMS-105A Tunable Demodulator is designed to demodulate AM, FM, SSB, CW, MCW, and FSK signals in the 1 kHz to 1600 kHz frequency range. The DMS-105A tunes this range in two bands: 1 kHz to 600 kHz and 540 to 1600 kHz. Band selection is by means of a front-panel switch which activates the desired local oscillator in the tuner and selects one of two input impedances, either 50 or 1000 ohms. Also, provision is made to utilize an external local oscillator in lieu of internal circuitry. A front-panel switch selects the desired oscillator. The tuned frequency is displayed by a 5-digit light emitting diode (LED) display located on the front panel. By using the display's decimal shift feature, the indicated frequency is within 10 Hz of the received frequency throughout the tuning range. The dynamic range of the DMS-105A is expanded by means of a front-panel controlled attenuator which provides up to 50 db of attenuation in 10-db steps.

There are four IF bandwidths available for use during the reception of upper or lower sideband signals: 2.5, 3.5, 4, and 8 kHz. Five bandwidths are provided for use when

the other operating modes are selected: 150 Hz, 1, 5, 7, 8, and 16 kHz. A translated IF output with selectable center frequencies of 15, 50, or 100 kHz is also available.

A digital automatic frequency control (DAFC) circuit in the DMS-105A permits locking the tuner's selected local oscillator to the counter's frequency display circuits. In addition to counteracting local oscillator drift, the DAFC circuit effectively acts as a frequency synthesizer to provide the equivalent of 160,000 crystal-controlled frequencies, each separated by 10 Hz, when used in the decimal shift mode. Thus the DMS-105A can be locked to a particular frequency whether or not a signal is present. A beat frequency oscillator is included for use during the reception of CW, MCW, FSK, and SSB signals. The BFO has three operating modes: zero beat, 1-kHz offset, and variable. In the variable mode the frequency may be changed as much as +8 kHz.

The DMS-105A-2 is a variant of the DMS-105A. This unit has an FM demodulator with the narrowband 1 kHz bandwidth changed to 8 kHz. The wideband 16 kHz band-

width remains the same. Also, the translated IF output of 15 kHz is changed to 10 kHz. The other translator output frequencies as well as all other characteristics are identical to the DMS-105A.

The DMS-105R is a DMS-105A-2 modified to meet the RFI/EMI requirements of MIL-STD 461. To meet these requirements the unit employs an improved power line filter, and the addition of balanced audio, video, and IF

translator outputs via triaxial rear apron connectors. An audio transducer has also been added in the phones output circuit to reduce the radiation associated with the magnetic headset in use.

The Tunable Demodulators are designed to mount in standard 19 inch equipment racks and occupy 5.25 inches of vertical space.

SPECIFICATIONS

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| Frequency Range | 1 kHz to 1600 kHz in two bands: Band 1: 1 kHz to 600 kHz Band 2: 540 kHz to 1600 kHz AM, FM, SSB, CW, MCW, and FSK 50 ohms or 1000 ohms, selectable by front-panel switch |
| Types of Reception | |
| Input Impedance | |
| Sensitivity (at 50-ohm input impedance and 1-kHz IF bandwidth) | 30 μ V, minimum, for 20 dB (s plus n)/n all modes |
| Input Attenuator | 0 dB to 50 dB; 10 dB/step |
| IF Center Frequency | 2.0 MHz |
| IF Bandwidths for FM, AM, CW, MCW, or FSK | 150 Hz, 1, 5, 7, 8, and 16 kHz |
| IF Bandwidths for SSB | 2.5, 3.5, 4, and 8 kHz upper or lower sideband |
| BFO | Disabled in FM and AM. Fixed at center of IF in upper and lower sideband. Controllable in BFO position as follows: 1. Zero beat (crystal-controlled) 2. 1-kHz offset (crystal-controlled) 3. Variable \pm 8 kHz |
| Image Rejection | 70 dB, minimum |
| IF Rejection | 60 dB, minimum |
| Digital AFC | Holds demodulator tuning within \pm 100 Hz of the indicated frequency in the normal AFC mode, and within \pm 10 Hz in the decimal shift AFC mode. |
| Input Monitor Switch | In the normal mode the unit functions as a normal demodulator; in the bypass mode the input is connected directly to the audio amplifier through the audio gain control. |
| Outputs | Nine: Front-panel phone jack (2000 ohms nominal). Rear-apron Audio (600-ohms ungrounded), 2-MHz IF output, SM Output, Video Output, FM Detector Output, AM Detector Output, Local Oscillator Output, Translated IF Output (2V p-p into 50-ohm load; 100, 50, or 15 kHz output front-panel selected). |
| Audio Amplifier Bandwidth | 50 Hz to 16 kHz, minimum |
| Video Output Level | 2 volts peak-to-peak, minimum, into 50-ohm load |
| External LO Input | 0 dBm, minimum |
| Input Power | 115/230 Vac \pm 10%, 48-420 Hz |
| Power Consumption | 30 watts, approximately |
| Dimensions | 5.25 inches high, 19 inches wide, and 19 inches deep, maximum |
| Weight | 31 lbs., approximately |