

## TUNABLE DEMODULATOR DMS-109



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### FEATURES

The DMS-109 Tunable Demodulator is designed to demodulate single sideband (SSB) signals in the 5-1000 kHz frequency range. This frequency range is covered in a single band. The unit is designed for manual scanning of multiplexed audio channels having 4 kHz spacing. The DMS-109 employs double conversion design techniques with the first conversion up to 2 MHz to insure high image rejection and the second conversion down to 455 kHz for demodulation of input signals. Mechanical filters provide an IF bandwidth of 2.85 kHz and are used in both the upper and lower sideband channels to obtain maximum rejection of adjacent channel signals and unwanted sideband.

The DMS-109 produces an output level of 1 mW into a 600-ohm load with an input signal level of 10 mV. Manual gain control of the unit permits input levels as high as 1 Volt to be used.

The tuned frequency of the DMS-109 is displayed on a five-digit Nixie readout located on the front panel. By using

the display's decimal shift feature, the indicated frequency is within 10 Hz of the tuned frequency. A digital automatic Frequency control (DAFC) circuit in the DMS-109 permits locking the unit's local oscillator to the electronic counter circuits of the frequency display. In addition to counteracting local oscillator drift, the DAFC circuit provides the equivalent of 99,500 crystal-controlled frequencies, each separated by 10 Hz, when in the decimal shift mode. Thus, the DMS-109 can be locked to a particular frequency, regardless of whether or not a signal is present.

Two audio outputs are provided from the DMS-109; a front-panel phones jack, and a 600 ohm output at a rear-panel barrier strip.

All active elements in the DMS-109 are solid state except for the frequency display readout tubes. The unit operates from a 115 or 230 Vac, 48-420 Hz, prime power source. The DMS-109 mounts in a standard 19-inch equipment rack and occupies 3.5 inches of vertical space.

For Further Information Please Contact:

#### WATKINS-JOHNSON COMPANY

6006 Executive Boulevard, Rockville, Maryland 20852  
(301) 881-3300. TWX: 710-824-9603 TELEX 89-2558 CABLE: WJCEI

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Specifications subject to change without notice.

## SPECIFICATIONS

Tuning Range .....	5 kHz to 1 MHz
Types of Demodulation .....	Upper sideband or lower sideband (selected by front-panel switch)
Input Impedance .....	10 k ohms, nominal
Input Level Range .....	10 mV to 1 V
Intermediate Frequencies .....	2 MHz, and 455 kHz
IF Bandwidth .....	2.85 kHz, minimum, at the 3 dB points
Audio Outputs .....	Phones jack and 600 ohm rear-panel output
Output Level .....	1 mW into 600 ohms, minimum
Output Frequency Response .....	300 Hz to 3.2 kHz, approximately
Undesired Sideband Rejection .....	40 dB, minimum
Adjacent Channel Rejection .....	40 dB, minimum (4 kHz channel spacing)
Fine Tuning Range .....	$\pm 3$ kHz at 1000 kHz, and $\pm 1$ kHz at 5 kHz
Frequency Readout .....	5-digit decimal readout, to nearest 10 Hz increment when frequency counter operated in the decimal shift mode
Front Panel Controls and Switches:	
Main Tuning .....	Manual tuning control, 5-1000 kHz
Fine Tuning .....	Manual control for varying tuned frequency a maximum of 2 to 6 kHz
Mode .....	Selects LSB or USB demodulation
Level Adjust .....	Sets manual gain level
Counter Mode .....	Selects Normal or Decimal Shift operation for frequency counter
DAFC Last Digit .....	Selects last digit for DAFC operation and frequency display
Power ON/OFF .....	Toggle switch for applying power to the unit
Operation Temperature .....	0°C to 50°C
Input Power .....	115 or 230 Vac $\pm 10\%$ , 48-420 Hz
Power Consumption .....	10 watts, approximately
Dimensions .....	19 inches wide, 3.5 inches tall, and 16 inches deep