The DM8-R 8-VSB modulator accepts an ATSC-compliant SMPTE 310M or optional ASI digital bit stream and generates a 44 MHz 8-VSB standard signal. To modulate to the 8-VSB standard, the digital data stream is first randomized and then forward error correction (FEC) is applied through Reed-Solomon encoding, data field interleaving and trellis coding per the ATSC standard. The FEC signal processing minimizes data errors in the digital bit stream and reduces the chance of burst errors, while significantly improving the system coding gain. The data is then equalized, processed through pulse shaping filters and pre-corrected for both linear and non-linear transmitter distortions. Finally, the data is modulated to the 8-VSB signal (centered at 44 MHz) utilizing Quadrature Vector Modulation techniques. A crystal controlled oscillator provides excellent stability and performance.

Front panel LEDs provide a quick indication of operating status and performance of the modulator. In addition, a 9-pin serial port is provided for the configuration of the digital linear and nonlinear pre-correctors.
# DM8-R – 8-VSB Modulator

## General
- **Modulation Type**: 8-VSB
- **Symbol Rate**: 10.76 MHz
- **Error Protection (Per ATSC Standard)**: RS(207, 187) t=10 Convolutional Interleaver 2/3 Rate Trellis Encoder
- **Signal to Noise Ratio (SNR)**: 34 dB min (36 dB typical)
- **Out of Band Rejection**: 41 dB min (47 dB typical)
- **EVM**: 2.0% max (1.5% typical)

## Correction
- **Linear**: ± 3 dB
- **Nonlinear**: + 6dB, -0 dB

## Data Interface
- **Data Rate (ATSC Transport Stream)**: 19.39 Mbps, 6 MHz channel
- **Interface**: SMPTE 310M (ASI optional)

## IF Output
- **Frequency**: 44 MHz IF, 6 MHz channel, Inverted (High Pilot)
- **Impedence**: 50 Ohms
- **Level**: -6 dBm Average

## Mechanical
- **Size (W x D x H)**: 19” x 12” x 1.75”
- **Weight**: 6 lbs

## Power Requirements
- **Line Voltage**: 84 to 264 VAC, 1 phase 50/60 Hz
- **Power Consumption**: 50W

## Test Signal Capabilities
- **Mpeg Source**: Internal PRBS-23
- **Test Waveforms**: Zero Pilot

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![Diagram of DM8-R Modulator](image)

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