

# MEQ1000

## MULTIPLEXING EDGE QAM MODULATOR



The R.L. Drake model MEQ1000 is a commercial grade multiplexing EDGE QAM modulator. This unit is ideal for installations where only one QAM output is required from each Edge QAM chassis. The MEQ1000 features plug in input modules that include an ATSC/QAM input tuner, an ASI input, an IP input, and analog NTSC inputs. This manual includes the DTD1000 tuner and ASII. Other input modules will have instructions provided with them.

The MEQ1000 has two input module slots and the outputs interface to the MEQ1000 multiplexer, internally, where they are MPEG program filtered, multiplexed, and groomed. Programs, among the total group from input module A and input module B, may be selected or not selected by the operator to be sent to the QAM modulator. A maximum of 20 programs may be selected. Also, the total bit rate of the selected programs must not exceed that of the output QAM channel capacity. This same filtered stream is output via the rear panel ASI output jack.

Some common applications include: drop/add, cherry picking programs from ASI or IP MPTS inputs, digital channel processing, or local origination additions.

The MEQ1000 contains a high performance QAM modulator that can operate in most ITU-A or ITU-B modes up through 1024 QAM. The very low noise, high output, up converter provides coverage from 54 MHz to 1002 MHz while maintaining exceptionally low phase noise and broadband noise. Output level can be selected at a value between + 45 and + 61 dBmV.

The MEQ1000 operates in a fixed output clock mode and processes null packets when required to maintain the setfixed clock rate. PCR correction is included.

## SPECIFICATIONS

**DTD1000 DEMODULATOR (S) Input Module**  
Input Frequency Range: 54 to 1000 MHz.  
Channel Plans (Menu selectable): Std. CATV, HRC, IRC, or Broadcast  
Input Channel Bandwidth: 6 MHz.  
Input RF Level Range: -33 dBmV to +35 dBmV, 8VSB  
-22 dBmV to +35 dBmV, 64 QAM  
-17 dBmV to +35 dBmV, 256 QAM  
Input Impedance: 75 Ohms  
Input Return Loss: > 6 dB, Broadcast mode; > 12 dB, CATV mode.  
Image rejection: 80 dB.  
Adjacent Channel Rejection: 40 dB  
Noise Figure: < 9 dB, Broadcast mode; < 12 dB, CATV mode.  
Demodulation Modes: 8VSB - ATSC  
64QAM, 256QAM, - ITUB, CATV mode.  
Symbol Rates: 10.76 MS/s, 8VSB; 5.057 MS/s, 64QAM; 5.3606MS/s, 256 QAM

**ASII ASI INPUT Input Module**  
ASI Input Clock: 270 MHz  
ASI Input Data Rate: Maximum of 80 Mbps per ASII module.

**MEQ1000 QAM Modulator**  
Modulation Modes: 16QAM, 32QAM, 64QAM, 128QAM, 256QAM, 512QAM or 1024QAM.  
Symbol Rate: 1 Ms/s to 7 Ms/s.  
FEC: ITUA (DVB) or ITUB (DigiCipher).  
I/Q Phase Error: Less than 1 degree.  
Carrier Suppression: 45 dB.  
Channel Amplitude Error: Less than 1 dB.  
MER: Greater than 38 dB with blind equalizer .

**MEQ1000 Upconverter RF Output**  
Output Frequency Range: 54 MHz to 1002 MHz.  
Channel Plan: Std. CATV, HRC, IRC, or Broadcast  
Frequency Stability:  $\pm 5$  ppm.  
Maximum Output Level: + 61 dBmV minimum, adjustable downward.  
Minimum Output Level: + 45 dBmV.  
Output Level Accuracy:  $\pm 1$  dB.  
Output Impedance: 75 Ohms with return loss better than 14 dB (within output filter passband).  
Spurious Outputs: -60 dBc from 40 MHz to 1000 MHz.  
Broadband Noise: Less than -12 dBmV (6 MHz BW @  $\pm 12$  MHz).  
Phase Noise: -101 dBc @ 10 kHz offset

**MEQ1000 RS232 Control**  
Data Link: 2400, 4800, 9600, or 19,200 baud interface via serial cable.  
RS232 Input: DB-9 connector for connection to modem or PC.  
RS232 Output: DB-9 connector for connection to additional transcoders.

**MEQ1000 ASI OUTPUT**  
The ASI output provides a copy of the transport stream that is input to the QAM modulator.

**GENERAL**  
Power: 90 - 132 VAC/ 60 Hz, 35 W maximum.  
Weight: 9.5 pounds  
Size: 19" W x 1.75" H x 14.5" D.  
Operating Temperature: 0 degrees C to + 50 degrees C



*MEQ1000 back panel featuring two input module bays and QAM output*