

WaveCom's **MA4050B**, digital QAM Modulator is a part of WaveCom's expanding line of digital CATV products. The MA4050B is a versatile commercial quality IF modulator for cable, MMDS and LMDS applications.

The MA4050B is a modular circuit card designed for use with the WaveCom MA4000 Series. Each MA4000 card chassis with common MA4011 power supply can contain up to 10 MA4050B independent QAM Modulators in a 4U (7") rack mount configuration. In addition to front panel control, each MA4000 chassis is also fully remote controllable via a serial interface or SNMP module.



Utilizing the latest all-digital modulation techniques, the MA4050B card can be configured to produce QPSK, 16, 32, 64, 128 or 256 QAM. The data may be coded to comply with DVB, DAVIC or DigiCipher II™ standards. The MA4050B is available with a number of data interface standard features, including DVB parallel, DVB synchronous serial, and DVB asynchronous serial interface (ASI coaxial). The MA4050B is capable of automatically synchronizing to the MPEG sync byte present in the incoming data, or inserting the sync byte at appropriate intervals. This advanced cost-effective modulator offers high performance, flexibility and space efficiency.

Card Features:

- Standard 44.0 MHz IF output
- Selection of data inputs including DVB parallel/synchronous serial, and DVB-ASI
- DVB, DAVIC (ITU-T J.83 Annex A) and DigiCipher II™ (ITU-T J.83 Annex B) encoding available
- Selectable excess bandwidths of 13%, 15% and 18%
- Internal Power Detector for IF output ensures ease of operation
- Microprocessor control ensures optimum performance
- Non-volatile memory to store operating configuration and to protect against power failures
- High reliability is enhanced by a high level of integration, minimizing interconnections
- Can generate pseudorandom data sequence or CW for test purposes

System Features:

- Local control via LCD and 4 soft touch push buttons
- Remote control via RS232/RS485 or optional SNMP
- Fully digital filtering and modulation provides the highest accuracy QAM output signal
- Durable design is reflected in the stainless steel chassis and lexan labels
- International internal switching power supply (100 to 240 VAC)



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Toll Free: 800-883-8839
Website: www.megahz.com
Email: sales@megahz.com

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THE WAVECOM MA4050B QAM MODULATOR CARD

SPECIFICATIONS — WAVECom MA4050B

Digital QAM Modulator

OUTPUT

Output Frequency	44.0 MHz center frequency
Output Level	+25 to +40 dBmV
Output Impedance	75 ohm
Output Connector	F female
Output Flatness	±0.4 dB (over bandwidth = 0.8 symbol rate)
Group Delay Variation	±50 ns max.
Carrier Frequency Accuracy	100 Hz
Mute Level	-55 dBc
Spurious	-55 dBc, 5 to 750 MHz
Modulation	QPSK, 16, 32, 64, 128, 256 QAM
Symbol Rate	7.1 MSymb/sec. max.

INPUT

Allowable Input Bit Rate Variation	Corresponding to ±25 kSymb/sec.
Coding	DVB, DAVIC (ITU-T J.83 Annex A) DCII (ITU-T J.83 Annex B)
Input Format	DVB - ASI Coaxial DVB - Parallel DVB - Synchronous serial
Data Format	188 or 204 byte MPEG2 Transport Stream
Data Connectors	
ASI	BNC female, 75 ohm
Parallel/Sync Serial	25 socket D subminiature w/female threaded posts

MONITORING AND ALARMS

Clock and Data Activity	LCD reading
IF Output Level	LCD reading
Summary Alarm	Red LED

MISCELLANEOUS

Remote Control Interface	RS232/RS485
Remote Control Connector	Dual RJ45 (in and out)
Operating Temperature	10 to 40°C (50 to 104°F)
Power Requirements	100 to 240 VAC; 50/60 Hz
Power Consumption	400 VA max.
Weight: MA4000 Chassis with MA4011 P.S.	18 lbs. (8.2 kg)
MA4050 Modulator Card (each)	1.2 lbs. (0.6 kg)
Dimensions (MA4000 chassis)	19" (w) x 14.25" (d) x 7" (h) (48.3 x 36.2 x 17.8 cm)
Mounting (MA4000 chassis)	Standard 19" rack - 4U (7.0") rack space

OPTIONS

1P4 - 43.75 MHz IF with 8 MHz Passband
1R1 - RS-422 Interface

