The Motorola OM 2000 Out-of-Band Multiplexer/Modulator generates an out-of-band (OOB) data stream from the headend to digital cable set-top devices, either individually or on a broadcast basis. The OM 2000 can be configured to receive data over Ethernet using UDP/IP, or as serial data over RS-530 or RS-232 communications links. The OOB data stream is used primarily as a signaling channel, but is also used to transmit electronic program guide (EPG) information and code download data. The out-of-band data stream is also the downstream path in an interactive system.

A Quadrature Phase Shift Key Modulator (QPSK) modulates the data on a 1.8 MHz-wide carrier. The center frequency is agile across the 71 to 129 MHz band. The OM 2000 uses null packets as necessary to perform rate aggregation between its inputs and the 2.048 Mbps output. Forward Error Correction (FEC) encoding and interleaving protect data integrity.

SPECIFICATION SHEET

BENEFITS

- Receives UDP/IP Ethernet and RS-530 or RS-232 serial data from multiple external devices
- Combines multiple sources of data into one MPEG-2 output transport stream
- Transmits an MPEG-2 data stream (authorization information, EPG data, code downloads, interactive data, and emergency alert packets) to cable terminals, individually or on a broadcast basis
- Provides FEC encoding of the output bitstream, interleaving, and randomization
- Provides QPSK-modulated output in a 1.8 MHz carrier in RF (71 to 129 MHz) or IF (44 MHz)
- Provides variable RF power control
- Provides status and alarms via SNMP traps
- Maintains a contact closure connection with an EAS generator, and transmits EAS messages when triggered by the contact closure
- Performs periodic insertion of internally stored messages
- Front-panel display indicates chassis IP address and RF output frequency

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## SPECIFICATIONS

### INPUT DATA

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>531564-001-00</td>
<td>OM2000, MODULATOR, AC POWER</td>
</tr>
<tr>
<td>531564-002-00</td>
<td>OM2000, MODULATOR, DC POWER</td>
</tr>
</tbody>
</table>

### INPUT DATA

- **Ethernet**: 10/100Base-T Fast Ethernet
- **Number of Ports**: 2 on rear panel
- **Network Data Rate**: 10 to 100 Mbps (maximum)
- **Data Throughput**: 2 Mbps (nominal)
- **Interface**: IEEE 802.3
- **Connector**: RJ-45
- **Messaging**: UDP/IP, SNMP
- **Serial RS-232 Interface**: 1 port on rear panel
- **Connector**: DB9 male
- **Baud Rate**: 300, 600, 1200, 2400, 9600, and 19,200 bps
- **Serial RS-530 Interface**: 1 port on rear panel
- **Connector**: DB25 male
- **Baud Rate**: 56 Kbps maximum (async), 2 Mbps maximum (sync)

### RF OUTPUT

- **Modulation**: DQPSK
- **Forward Error Correction**: Reed-Solomon (96,94)
- **Interleaving**: Convolutional (I=8, J=12)
- **Carrier Symbol Rate**: 1.024 Msps
- **Channel Bit Rate**: 2.048 Mbps (2 bits/symbol)
- **Information Bit Rate**: 2.00533 Mbps
- **Carrier Suppression**: 50 dB (typical)
- **Output Signal BW**: 1.8 MHz
- **Center Frequency**: 71 to 129 MHz (configurable)
- **Frequency Step Size**: 50 KHz
- **Level**: 30 to 50 dBmV (configurable)
- **Level Step Size**: 0.5 dB
- **In-Band Spurious**: –60 dBc minimum
- **MER**: 30 dB minimum
- **Return Loss**: 14 dB in channel, 10 dB outside channel
- **RF Output Level Stability vs. Temperature**: ± 2 dB
- **Accuracy of RF Carrier**: 15 PPM

### ELECTRICAL (AC POWER)

- **Input Voltage**: 100 to 240 VAC (50 to 60 Hz)
- **Current**: < 1 A, 120 V
- **Power Consumption**: 48 W (typical), 60 W (maximum)

### ELECTRICAL (DC POWER)

- **Input Voltage**: –40 to –60 VDC
- **Current**: 0.9 A Max
- **Power Consumption**: 36 W (typical), 60 W (maximum)

### OPERATING ENVIRONMENT

- **Ambient Temperature**: 32 °F to 122 °F (0 °C to 50 °C)
- **Ambient Humidity**: 5% to 90%
- **Storage Temperature**: –40 °F to 158 °F (–40 °C to 70 °C)
- **Cooling**: 2 fans

### MECHANICAL

- **Dimensions**: 1.75 in H x 19 in W x 18 in D (4.45 cm x 48.26 cm x 45.72 cm)
- **Weight**: 10 pounds (4.5 kg)
- **Mounting**: Rack mount

### CONFIGURATION AND CONTROL

- **Local Element Manager**: Motorola SDM

### OTHER

- **Limited Warranty**: 1 year