MT3300

ANTENNA MOUNT TRAVELING WAVE TUBE POWER AMPLIFIER

FOR SATELLITE UPLINK APPLICATIONS

Ka-BAND: 120W
150W
175W
250W

FEATURES:
- Weather Resistant Antenna Mount TWT Amplifier
- Phase Noise 10 dB Below IESS-308
- Extensive Built-In Diagnostic Capabilities
- Advanced Thermal Design
- Rugged Construction For Extreme Environments
- Optional Hand-Held Controller For Total Local Monitoring And Control

ENVIRONMENTAL SPECIFICATIONS
- Operating Temperature: -40°C to +50°C (derated 1.9°C per 1,000 ft. above sea level)
- Non-Operating Temperature: -50°C to +70°C
- Relative Humidity: 100%, condensing
- Operating Altitude: 10,000 ft. above sea level (3,048 m)
- Non-Operating Altitude: 50,000 ft. above sea level (15,240 m)
- Vibration: MIL-STD-810E, Method 514.4, Proc. 1, Cat. 1
- Shock: 5g, 1ms, shelf test

MECHANICAL SPECIFICATIONS
- RF Connectors: Input WR-28, Output WR-28G
- Installed Weight: 65 lbs. nominal/29.5 kg
- Cooling: Air flow, 2.0" clearance required
- Acoustic Noise: <68 dBA max. at 1 meter

PHYSICAL SPECIFICATIONS
- Dimensions: 9.60" H x 10.25" W x 20.5" L
- Air Flow: 150 CFM

AVAILABLE SYSTEM OPTIONS:
- MT3300-1 1 + 1 Redundant System
- MT3300-2 1 + 2 Redundant System
- Other Configurations Available Upon Request

AVAILABLE AMPLIFIER OPTIONS:
- SSA With Gain Control
- Switchover Control
- Linearizer
- Mounting Configurations
- Remote Controller
- Hand-Held Local Controller

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- Vibration: MIL-STD-810E, Method 514.4, Proc. 1, Cat. 1
- Shock: 10g, 11ms half sine
MT3300
TRAVELING WAVE TUBE MEDIUM POWER AMPLIFIER

CONTROL AND STATUS CAPABILITIES

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls</td>
<td>Filament ON/OFF Unit Select Fault Counter ON/OFF</td>
</tr>
<tr>
<td></td>
<td>Transmit/Standby Hold Power ON/OFF Antenna Position (1:1)</td>
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<td></td>
<td>RF ON/OFF Auto Switching (1:1) Load Position (1:1)</td>
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<tr>
<td></td>
<td>Reset Manual Switching (1:1) Local Remote Computer</td>
</tr>
<tr>
<td>Adjustible Parameters</td>
<td>Auto Power Tube Overdrive Alarm Tube Overdrive Fault</td>
</tr>
<tr>
<td></td>
<td>Tube Temperature Alarm RF Reflected Power Alarm RF Reflected Power Fault</td>
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<tr>
<td></td>
<td>RF Low Alarm Comm Band Rate Comm Protocol</td>
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<tr>
<td></td>
<td>RF Low Alarm Comm Band Rate</td>
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<tr>
<td></td>
<td>RF High Alarm</td>
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<tr>
<td>Meters</td>
<td>Tube Temperature</td>
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<td></td>
<td>RF Forward Power</td>
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<td></td>
<td>Tube Drive</td>
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<td></td>
<td>RF Reflected Power</td>
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<tr>
<td></td>
<td>Tube Temperature</td>
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<tr>
<td></td>
<td>Filament Delay</td>
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<td></td>
<td>PS Temperature</td>
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<tr>
<td>Faults</td>
<td>Tube Temperature Switch WG Pressure Arc Tail Failed</td>
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<tr>
<td></td>
<td>Tube Temperature Analog WG Arc</td>
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<tr>
<td></td>
<td>Tube Run Current Helix Surge Current</td>
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<td></td>
<td>HV Under Volt HV Over Volt User Interlock</td>
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<td></td>
<td>Tube Temperature Switch</td>
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<td></td>
<td>Filament Under Current</td>
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<tr>
<td>Alarms</td>
<td>RF high</td>
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<tr>
<td></td>
<td>Tube Temperature</td>
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<td>RF Low</td>
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<td>Tube Overdrive</td>
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<td>PS Temperature</td>
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<tr>
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<td>RF Switch Failed</td>
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<tr>
<td></td>
<td>RF Reflected</td>
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<td></td>
<td>Gas Flow Failed</td>
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<td></td>
<td>Exchanger</td>
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<td>AC Low Line</td>
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<td></td>
<td>RF Switch</td>
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<tr>
<td>Addtional Status</td>
<td>Delay</td>
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<td>Summary Alarm</td>
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<td>Maintenance Log</td>
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<td></td>
<td>Event Log</td>
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<td>Fault Log</td>
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</tbody>
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Notes: All specifications, except gain, are applicable with and without the optional SSA. Performance information is subject to change without notification. Contact MCL for the latest specifications.

**Ka-BAND**

<table>
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<tr>
<th>Frequency Range (GHz)</th>
<th>120 W</th>
<th>150 W</th>
<th>175 W</th>
<th>250 W*</th>
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**RF BLOCK DIAGRAM**

**ELECTRICAL SPECIFICATIONS**

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**Notes:**

- To 10 kHz: -50 dBc
- 10 - 500 kHz: -20 (1.5 + log f kHz) dBc
- Above 500 kHz: -85 dBc
- Total Power PoIM Product
- -4 dB -18 dBc -17 dBc -18 dBc -17 dBc
- -7 dB -24 dBc -23 dBc - -
- Linearizer Option
- Gain/Delay
- Linear: 0.5 ns/p-p
- Parabolic: 0.005 ns/p-p2
- Ripple: 0.5 ns/p-p
- Prime Power:
  - Voltage: 100 - 260 VAC, 1-phase, 47 - 63 Hz
  - Power Consumption: 650 VA
  - Power Factor: 0.95 min.
  - In-Rush: 13A max.
- Input Transients: EN61000-4-4, 4-5, 4-11 (Surge, Fast Transients, Line Dropout)
**MT3300 TRAVELING WAVE TUBE MEDIUM POWER AMPLIFIER**

### RF BLOCK DIAGRAM

### CONTROL AND STATUS CAPABILITIES

**TYPE**

- Filament ON/OFF
- Tube Temperature Alarm
- RF Reflected Power Alarm
- RF Reflected Power Fault
- Tube Temperature Fault
- RF Switch Failed
- Load Position
- Local Remote Computer

**FUNCTION**

- Units Select
- Auto Power
- Tube Overdrive Alarm
- RF Reflected Power Alarm
- RF Reflected Power Fault
- Filament Under Current Fault
- Comm Protocol

- Auto Switching (1:1)
- Manual Switching (1:1)
- Comm Band Rate
- Load Power ON/OFF
- Transmit Standby
- Antenna Position (1:1)

- Inrush: 13A max.
- Input Transients: EN61000-4-4, 4-5, 4-11

- RF Trade-Off Power
- Tube Drive
- Tube Temperature
- Filament Current

- RF Delay
- Tube Drive
- Tube Temperature
- Filament Current

- RF High
- RF Low
- Tube Overdrive
- RF Reflected
- Tube Temperature
- PS Temperature

- Tube Temperature
- Tube Temperature
- PS Temperature
- PS Temperature
- Chassis Interlock
- Filament Under Current

- User Interlock
- AC Low Line
- RF Switch Failed
- RF Switch

### ELECTRICAL SPECIFICATIONS

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<th>X-BAND</th>
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<td>120 W</td>
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- **Control and Status Capabilities**
- **Inc.**
- **RF Input**
- **RF Output**
- **FWD. COUPLER**
- **DETECTOR**
- **Harmonic Filter**
- **TWT**
- **FWD. COUPLER**
- **DETECTOR**

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Extensive Built-In Diagnostic Capabilities
Advanced Thermal Design
Rugged Construction For Extreme Environments
Optional Hand-Held Controller For Total Local Monitoring And Control

ENVIRONMENTAL SPECIFICATIONS
Operating Temperature:
-40°C to +50°C (derated 1.9°C per 1,000 ft. above sea level)
Non-Operating Temperature:
-50°C to +70°C
Relative Humidity:
93% maximum
Operating Altitude:
3000 ft. above sea level (914 m)
Non-Operating Altitude:
5000 ft. above sea level (1524 m)
Vibration:
MIL-STD-810E, Method 514.4, Proc. 1, Cat. 1
Shock:
38g, 1ms half sine

MECHANICAL SPECIFICATIONS
RF Connectors:
Input: WR-28
Output: WR-28G
Installed Weight:
65 lbs. nominal/29.5 kg
Cooling:
Forced air, 2.0" clearance required
Acoustic Noise:
<68 dBA max. at 1 meter

PHYSICAL SPECIFICATIONS
Dimensions:
9.60" H
10.25" W
20.5" L
Air Flow:
150 CFM

AVAILABLE SYSTEM OPTIONS:
MT3300A 1 + 1 Redundant System
MT3300B 1 + 2 Redundant System
Other Configurations Available Upon Request

AVAILABLE AMPLIFIER OPTIONS:
SSA With Gain Control
Switchover Control
Linearizer
Mounting Configurations
Remote Controller
Hand-Held Local Controller

MECHANICAL SPECIFICATIONS
RF Connectors:
Input: WR-28
Output: WR-28G

PHYSICAL SPECIFICATIONS
Dimensions:
9.60" H
10.25" W
20.5" L

AC POWER CIRCUIT BREAKER
DIAGNOSTIC CONNECTOR MS3116-10-6S
INTERFACE CONNECTOR MS3116-20-41S
SWITCHOVER CONNECTOR MS3116-14-19S

AIR FLOW DIRECTION
1/4-20 x 0.31 DEEP MOUNTING HOLES 6 PLACES
AIR EXHAUST
RF OUTPUT FLANGE WR28G
AIR INTAKE PRIME POWER MIL-C-5015
9.00 20.50 2.91 10.25 2.94 20.00 8.25 20.93
1.47 7.31 .34
INTAKE CLEARANCE 9.60 7.47 2.15 1.90 6.04 8.37 11.82
2.00 MIN.

OUTLINE DRAWING

MT3300-03.06
MCL, INC
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OUTSIDE THE USA: 312-461-4536 • www.mcl.com
ISO 9001

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