1/3 RACK-MOUNT AMPLIFIER SYSTEMS

TRA SERIES

These L3 Narda-MITEQ one-third rack amplifier systems are designed to compensate for long cable run loss in the classic SATCOM bands. These systems can be equipped with independent input (Option 3) and output (Option 4) gain adjustment and can be configured to provide system redundancy in a 1RU package.

TRA UNITS FEATURES

- RF hot-swappable units
- Rack-mountable
- Current fault alarm/summary alarm
- Classic SATCOM bands
- Independent power supplies
- Remote status (Option 17 only)
- Amplifier current fault-detection
- CE certified

OPTIONS

- Input/output attenuators
- Remote control for attenuation and alarms
- Input/output signal monitors
- Increased gain
- Increased output power
- Custom bandwidths available

TRA SERIES 1/3 RACK-MOUNT 1RU CONFIGURATIONS AVAILABLE

See last page for detailed illustrations

- Up to three amplifier channels in 1RU package
- 1:1 configuration: via use of RSU-TR switchover unit (see D-322)
- 1:2* and up to 1:12* configurations: via use of NSU2/NSUN controller (see D-323B)

* 1:2 and up to 1:12 configurations require additional rack height for NSUN controller and additional channels

TRI SERIES

<table>
<thead>
<tr>
<th>FREQUENCY (GHZ)</th>
<th>MODEL NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05 to 0.09</td>
<td>TRA-005009*</td>
</tr>
<tr>
<td>0.10 to 0.18</td>
<td>TRA-010018*</td>
</tr>
<tr>
<td>0.95 to 1.45</td>
<td>TRA-095145*</td>
</tr>
<tr>
<td>0.95 to 1.75</td>
<td>TRA-095175*</td>
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<tr>
<td>0.95 to 2.15</td>
<td>TRA-095215*</td>
</tr>
<tr>
<td>1.5 to 1.8</td>
<td>TRA-150180</td>
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<tr>
<td>2.0 to 2.7</td>
<td>TRA-200270</td>
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<tr>
<td>3.4 to 4.2</td>
<td>TRA-340420</td>
</tr>
<tr>
<td>4.5 to 4.8</td>
<td>TRA-450480</td>
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<tr>
<td>5.725 to 6.725</td>
<td>TRA-572672</td>
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<tr>
<td>5.845 to 6.430</td>
<td>TRA-584643</td>
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<td>6.4 to 7.2</td>
<td>TRA-640720</td>
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<td>7.25 to 8.4</td>
<td>TRA-725840</td>
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<tr>
<td>10.7 to 12.75</td>
<td>TRA-107128</td>
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<tr>
<td>13.75 to 14.8</td>
<td>TRA-137148</td>
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<tr>
<td>17.7 to 21.2</td>
<td>TRA-177212</td>
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<tr>
<td>17.7 to 22.0</td>
<td>TRA-177220</td>
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<tr>
<td>27.5 to 31.0</td>
<td>TRA-275310*</td>
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<tr>
<td>31.0 to 33.0</td>
<td>TRA-310330*</td>
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</table>

* References input/output return loss specification.

Narda-MITEQ

U.S. Patent #7,510,090
RF SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
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<tbody>
<tr>
<td>Gain</td>
<td>30 dB minimum (higher gain optional)</td>
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<tr>
<td>Gain flatness</td>
<td>0.4 dB/any 40 MHz, 1.0 dB peak-to-peak/RF-Bands up to 500 MHz, 1.5 dB peak-to-peak/RF-Bands up to 800 MHz, 2.0 dB peak-to-peak/RF-Bands greater than 800 MHz</td>
</tr>
<tr>
<td>Gain slope</td>
<td>0.2 dB/10 MHz maximum</td>
</tr>
<tr>
<td>Gain stability</td>
<td>±0.2 dB/24 hours (constant temperature)</td>
</tr>
<tr>
<td>Power output (1 dB compression)</td>
<td>+10 dBm minimum (higher output power optional)</td>
</tr>
<tr>
<td>Noise figure</td>
<td></td>
</tr>
<tr>
<td>Below 4.2 GHz</td>
<td>3 dB maximum</td>
</tr>
<tr>
<td>4.2 to 12.75 GHz</td>
<td>4 dB maximum</td>
</tr>
<tr>
<td>12.75 to 14.5 GHz</td>
<td>5 dB maximum</td>
</tr>
<tr>
<td>Above 14.5 GHz</td>
<td>8 dB maximum</td>
</tr>
<tr>
<td>Spurious outputs</td>
<td>Below thermal noise</td>
</tr>
<tr>
<td>AM/PM conversion</td>
<td>0.5°/dB maximum to 0 dBm output</td>
</tr>
<tr>
<td>Input/output return loss</td>
<td>20 dB minimum, *10 dB minimum (refer to table on page one)</td>
</tr>
<tr>
<td>Input/output impedance</td>
<td>50 ohms</td>
</tr>
</tbody>
</table>

GENERAL SPECIFICATIONS

PRIMARY POWER REQUIREMENTS
Voltage............................................................... 90 VAC to 250 VAC
Frequency......................................................... 47 Hz to 63 Hz
Consumption ..................................................... 10 W typical

SUMMARY ALARM
Contact closure/open for DC voltage and/or amplifier alarm
Status alarm readout on remote control bus (digital front-panel required, Option 17)

PHYSICAL
Weight ............................................................. 3 lb. [1.36 kg] typical
Overall dimensions ............................................ 5.70" [144.8 mm] x 1.48" [37.6 mm] x 18" [457.2 mm]
(excluding connectors)

Connectors
Primary power input ............................................. IEC 320
RF connectors .................................................... SMA female,
3.5 mm compatible above 22 GHz
Status interface .................................................. DE-9S
Redundancy interface mating connector .............. DE-9P
Remote interface (Option 17 only) ...................... RJ-45 female for Ethernet, RS-422/RS-485
available on status connector

ENVIRONMENTAL
Operating
Ambient temperature .............................................. 0 °C to 50 °C
Relative humidity .............................................. Up to 95% at 30 °C
Atmospheric pressure ......................................... Up to 10,000 feet
Nonoperating
Ambient temperature .............................................. -50 °C to +70 °C
Relative humidity .............................................. Up to 95% at 40 °C
Atmospheric pressure ......................................... Up to 40,000 feet
Shock and vibration ........................................ Normal handling by commercial carriers
OPTIONS

Missing option number are not applicable for this product.

1. RF input monitor with -20 dBc nominal level
2. RF output monitor with -20 dBc nominal level
3. Input level control, 30 dB continuous adjust via front-panel screw (30 dB in 0.2 dB steps with Option 17).
4. Output level control, 30 dB continuous adjust via front-panel screw (30 dB in 0.2 dB steps with Option 17).
11. Increased output power
   A. +15 dBm output power at 1 dB compression
   B. +20 dBm output power at 1 dB compression
16. Higher gain
   A. 40 dB minimum gain
   B. 50 dB minimum gain
17. Remote control........10/100 Base-T Ethernet interface providing:
   - HTTP-based web server
   - SNMP 1.0 configuration
   - Alarm reporting via SNMP Trap
   - Telnet access
   - Password protection and selectable RS-485/RS-422
   Gain control is 30 dB in 0.2 dB steps

Notes: Options 1 and 3 will degrade noise figure proportional to insertion loss of devices inserted before amplifiers. Options 2 and 4 will reduce output power compression point proportional to insertion loss of devices inserted after amplifier.

RACK-MOUNT FRAME

ACCESSORIES

One-third rack-mount frame

Model number.............................................OL-TR3-20
Weight...........................................................1.5 lb. [0.68 kg] nominal
Dimensions ...................................................19" [482.6 mm] x 1.75" [44.5 mm] x 20" [508.0 mm]

Single unit frame (includes rack slides)

Model number.............................................OL-TR1-20
Weight...........................................................2 lb. [0.9 kg] nominal
Dimensions ...................................................19" [482.6 mm] x 1.75" [44.5 mm] x 18" [457.2 mm]

Dual unit frame (includes rack slides)

Model number.............................................OL-TR2-20
Weight...........................................................3 lb. [1.35 kg] nominal
Dimensions ...................................................19" [482.6 mm] x 1.75" [44.5 mm] x 18" [457.2 mm]
SOME CONFIGURATIONS USING L3 NARDA-MITEQ PATENTED 1/3 RACK-MOUNT EQUIPMENT

THREE-CHANNEL AMPLIFIER SYSTEM:
3 - Standard TRA Amplifier models (with Option 3 manual adjust input attenuator) are shown, TRA models (with Option 17 display) can be substituted.

1:1 REDUNDANT AMPLIFIER SYSTEM:
2 - TRA Amplifiers models (with Option 17 display and Option 3 digital control input attenuator) are shown, standard TRA amplifier models can be substituted and 1 - one-third rack RSU switchover unit

1:2 REDUNDANT AMPLIFIER:
1:2 Redundant Configuration shown using 3 - TRA amplifiers models (with Option 17 display and Option 3 digital control attenuator) are shown and 1 - NSU2 switchover unit

CONFIGURE UP TO 1:12 REDUNDANT AMPLIFIER SYSTEM:
1:11 Redundant Configuration shown with 12 - TRA amplifiers models (with Option 17 display) and 1 - NSUN control unit

The material presented in this datasheet was current at the time of publication. L3 Narda-MITEQ’s continuing product improvement program makes it necessary to reserve the right to change our mechanical and electrical specifications without notice. If either of these parameters is critical, please contact the factory to verify that the information is current.

This material consists of L3 Narda-MITEQ general capabilities information and does not contain controlled technical data as defined within the International Traffic in Arms (ITAR) Part 120.10 or Export Administration Regulations (EAR) Part 734.7-11.

D-362E/03.15.17

L-Band Amplifier  C-Band Amplifier  Ka-Band Amplifier

TRA Amplifier  RSU-S/S-TR Switchover Unit  TRA Amplifier

TRA Amplifier  TRA Amplifier  TRA Amplifier

TRA Amplifier  TRA Amplifier  TRA Amplifier

TRA Amplifier  TRA Amplifier  TRA Amplifier

TRA Amplifier  TRA Amplifier  TRA Amplifier

TRA Amplifier  TRA Amplifier  TRA Amplifier

NSUN Control Unit

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