# 1:1, DUAL 1:1 AND 1:2 REDUNDANT LINE AMPLIFIER SYSTEMS

1:1 UNIT

DUAL 1:1 UNIT

1:2 UNIT

## FEATURES

- Fault tolerant design
- Fully redundant, hot swappable power supplies
- Remote control via RS485 or RS422 user selectable
- Automatic/manual control from both local and remote mode
- Remote status
- Off-line input/output access
- Amplifier current fault detection
- Time-stamped alarm history

The 1:1, dual 1:1 and 1:2 redundant line amplifier systems are designed to ensure continuous operation without disruption of signal transmission.

A fault condition in the on-line amplifier, or an operator generated command, will switch the standby amplifier to the on-line position and remove the on-line amplifier from the signal path.

## OPTIONS

- Remote RS232 or contact closure
- Input/output signal monitors
- Level control
- Higher gain
- Increased output power

# SPECIFICATIONS

| Frequency (GHz) | 1:1 Model Number | 1:2 Model Number | Dual 1:1 Model Number |
|---|---|---|---|
| 0.95 – 1.45 | RL1-095145* | RL2-095145* | RL3-095145* |
| 0.95 – 1.75 | RL1-095175* | RL2-095175* | RL3-095175* |
| 0.95 – 2.15 | RL1-095215* | RL2-095215* | RL3-095215* |
| 1.5 – 1.8 | RL1-150180 | RL2-150180 | RL3-150180 |
| 2.0 – 2.7 | RL1-200270 | RL2-200270 | RL3-200270 |
| 3.4 – 4.2 | RL1-340420 | RL2-340420 | RL3-340420 |
| 4.5 – 4.8 | RL1-450480 | RL2-450480 | RL3-450480 |
| 5.725 – 6.725 | RL1-572672 | RL2-572672 | RL3-572672 |
| 5.845 – 6.430 | RL1-584643 | RL2-584643 | RL3-584643 |
| 6.4 – 7.2 | RL1-640720 | RL2-640720 | RL3-640720 |
| 7.25 – 8.4 | RL1-725840 | RL2-725840 | RL3-725840 |
| 10.7 – 12.75 | RL1-107128 | RL2-107128 | RL3-107128 |
| 13.75 – 14.8 | RL1-137148 | RL2-137148 | RL3-137148 |
| 17.7 – 21.2 | RL1-177212 | RL2-177212 | RL3-177212 |
| 17.7 – 22.0 | RL1-177220 | RL2-177220 | RL3-177220 |
| 27.5 – 31.0 | RL1-275310* | RL2-275310* | RL3-275310* |
| 31.0 – 33.0 | RL1-310330* | RL2-310330* | RL3-310330* |

* References input/output return loss specification.

Gain ..... 30 dB minimum (higher gain optional)
Gain flatness..... 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
Gain slope..... 0.2 dB/10 MHz maximum
Gain stability ..... ±0.2 dB/24 hours (constant temperature)
Power output (1 dB compression) ..... +10 dBm minimum (higher output power optional)
Channel-to-channel gain match ..... 2 dB maximum
Noise figure
Below 4.2 GHz ..... 3 dB maximum
4.2 GHz to 12.75 GHz..... 4 dB maximum
12.75 GHz to 14.5 GHz..... 5 dB maximum
Above 14.5 GHz ..... 8 dB maximum
Spurious outputs..... Below thermal noise
AM/PM conversion ..... 0.5°/dB maximum to 0 dBm output
Isolation ..... 50 dB minimum
Input return loss ..... 20 dB minimum
*10 dB minimum (refer to table)
Input/output impedance ..... 50 ohms

## PRIMARY POWER REQUIREMENTS

Voltage ..... 90–250 VAC
Frequency..... 47–63 Hz
Power consumption..... 40 W typical

## SUMMARY ALARM

Contact closure/open for DC voltage and/or amplifier alarm
Status alarm readout on remote control bus

# SPECIFICATIONS (CONT.)

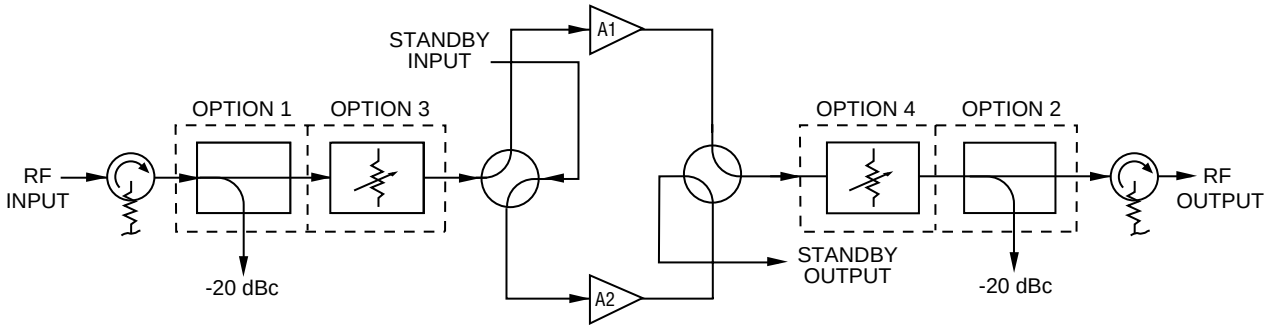
## PHYSICAL

| | |
|---|---|
| AC input connectors | IEC-320 |
| RF connectors | SMA female,<br>3.5 mm compatible above 22 GHz |
| Summary alarm interface mating connector | DEM-9P |
| Remote interface | DEM-9S for RS485 and RS422,<br>DB-25P for RS232,<br>DB-37S for contact closure,<br>IEEE-488 receptacle for GPIB |
| Weight | 20 pounds typical |
| Overall dimensions | 19” x 1.75” panel x 22” maximum (chassis depth 20”) |

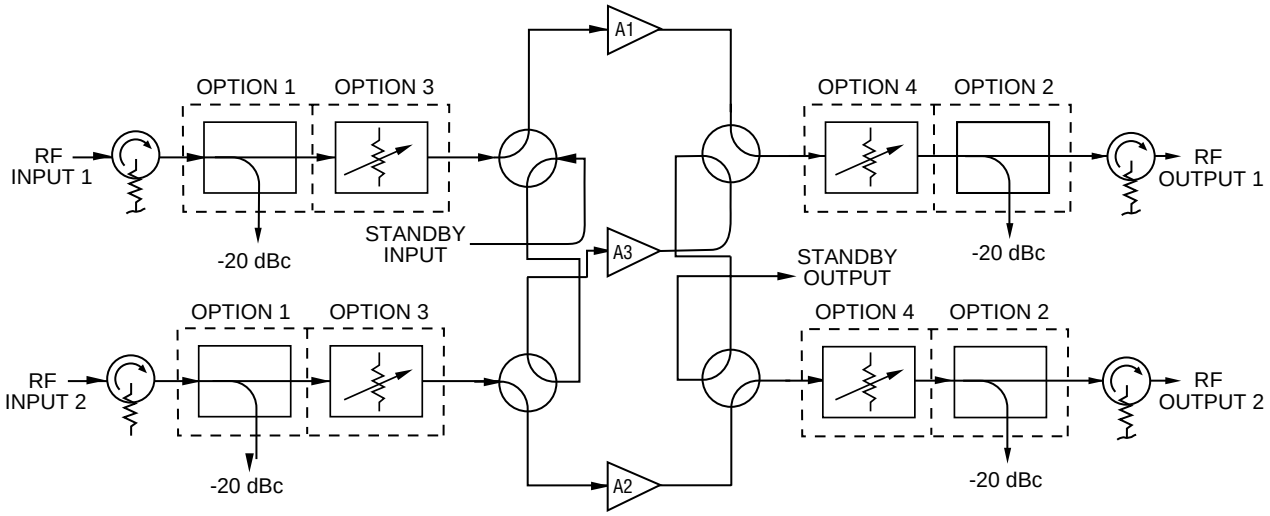
## ENVIRONMENTAL

| | |
|---|---|
| Operating | |
| Ambient temperature | 0 to 50°C |
| Relative humidity | Up to 95% at 30°C |
| Atmospheric pressure | Up to 10,000 feet |
| Nonoperating | |
| Temperature | -50 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 |

## 1:1 REDUNDANT LINE AMPLIFIER FUNCTIONAL BLOCK DIAGRAM




## 1:2 REDUNDANT LINE AMPLIFIER FUNCTIONAL BLOCK DIAGRAM



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## OPTIONS

**1.** RF input monitor with -20 dBc nominal level.

**2.** RF output monitor with -20 dBc nominal level.

**3.** Input level control, 30 dB in 0.2 dB steps, local and remote control.

**4.** Output level control, 30 dB in 0.2 dB steps, local and remote control.

**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.
- **B.** RS422/485 (supplied as standard).
- **C.** RS232.
- **D.** Contact closure.

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

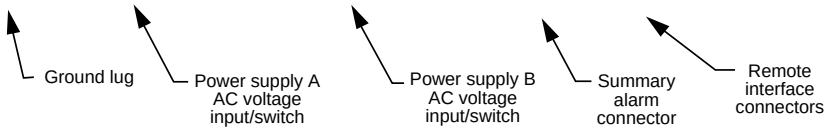
Missing option numbers are not applicable to this product.
For literature describing local control and remote control (bus protocols), refer to MITEQ's Technical Note 25T043.

## TYPICAL REAR PANEL VIEW

### RL1 SERIES

### RL2 SERIES

### RL3 SERIES

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