These amplitude/slope equalizer systems offer independent gain and slope adjustment in the IF and L frequency bands. These systems are designed to compensate for long cable run loss and to provide system redundancy. The DL Series has independent dual-channel equalizer modules and is offered with an electro-mechanical (DLE) or digital (DL1E) slope and gain adjustment. The RL Series is a 1:1 redundant system that provides automatic and manual switchover modes of operation.

### Features
- Fault tolerant design
- Fully redundant, hot swappable power supplies
- Remote control via RS485 or RS422 user selectable (DL1E and RL1E only)
- Remote status
- Module current fault detection
- Front panel module bias display (DL1E and RL1E only)
- Auto/manual mode (RL1E only)
- Off-line input/output access (RL1E only)

### Options
- Remote RS232, contact closure or Ethernet
- Input/output signal monitors
- Increased gain
- Increased output power
## Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>IF-Band</th>
<th>L-Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td>20 dB minimum</td>
<td>15 dB minimum</td>
</tr>
<tr>
<td></td>
<td>(at center frequency and 6 dB slope adjustment),</td>
<td>(at 0 dB slope)</td>
</tr>
<tr>
<td></td>
<td>10 dB nominal</td>
<td></td>
</tr>
<tr>
<td>Gain adjustment range</td>
<td>20 dB minimum</td>
<td></td>
</tr>
<tr>
<td>Amplitude slope</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustment range</td>
<td>0 to 6 dB (see Figure 1)</td>
<td>0 to 6 dB (see Figure 2)</td>
</tr>
<tr>
<td>Amplitude flatness</td>
<td>0.5 dB p-p maximum (at 0 dB slope)</td>
<td>1.5 dB p-p maximum (at 0 dB slope)</td>
</tr>
<tr>
<td>Power output (P1dB)</td>
<td>+10 dBm minimum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(at maximum gain and 6 dB slope)</td>
<td>(at maximum gain and 0 dB slope)</td>
</tr>
<tr>
<td>Third order intercept point</td>
<td>+20 dBm minimum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(at maximum gain and 6 dB slope)</td>
<td>(at maximum gain and 0 dB slope)</td>
</tr>
<tr>
<td>Channel-to-channel match</td>
<td>1 dB maximum</td>
<td>2.5 dB maximum</td>
</tr>
<tr>
<td></td>
<td>(at maximum gain and 6 dB slope)</td>
<td>(at maximum gain and 0 dB slope)</td>
</tr>
<tr>
<td>Noise figure</td>
<td>10 dB maximum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(at maximum gain and 6 dB slope)</td>
<td>(at maximum gain and 0 dB slope)</td>
</tr>
<tr>
<td>Spurious signal independent</td>
<td>Below thermal noise</td>
<td></td>
</tr>
<tr>
<td>AM/PM conversion</td>
<td>0.5°/dB maximum at 6 dBm output</td>
<td>0.5°/dB maximum at 0 dBm output</td>
</tr>
<tr>
<td>Isolation</td>
<td>50 dB minimum</td>
<td></td>
</tr>
<tr>
<td>Input/output return loss</td>
<td>18 dB minimum</td>
<td></td>
</tr>
<tr>
<td>Input/output impedance</td>
<td>75 ohms (50 ohms optional)</td>
<td>50 ohms</td>
</tr>
<tr>
<td></td>
<td>50 ohms</td>
<td></td>
</tr>
</tbody>
</table>
General Specifications

Primary Power Requirements
Voltage .......................................................... 95–250 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

Physical
Weight .......................................................... 20 pounds (9.07 kg) typical
Overall dimensions ....................................... 19" [482.6mm] x 1.75" [44.45mm] panel x 22" [558.8mm] maximum
(chassis depth 20" [508mm])
AC input receptacle ........................................ IEC-320
RF connectors (IF-band) ................................. Type BNC female
RF connectors (L-band) ................................. Type SMA female
Summary alarm interface mating connector ...... DEM-9P
Remote interface ............................................. DEM-9S for RS422 and RS485,
............................................................ DB-25P for RS232,
............................................................ DB-37S for contact closure,
............................................................ RJ-45 female for Ethernet

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

IF-Band Slope Adjustment

L-Band Slope Adjustment

FIGURE 1

FIGURE 2
**Options**

1. Input monitor with -20 dBC nominal level.

2. Output monitor with -20 dBC nominal level.

11. Increased output power (L-band only).
   - Power output (1 dB compression): +20 dBm minimum (at maximum gain and 0 dB slope).
   - Third order intercept point: +30 dBm minimum (at maximum gain and 0 dB slope).
   - Output return loss: 14 dB minimum.

15. Impedance, 50 ohms (IF-band only).

16. Increased gain, 30 dB minimum (at center frequency and 6 dB slope adjustment).

17. Remote control (DL1E and RL1E only).
   - RS422/485 (supplied as standard).
   - RS232.
   - Contact closure.
   - 10/100Base-T Ethernet interface providing:
     - Web-browser-based configuration
     - SNMP 1.0 configuration
     - Alarm reporting via SNMP Trap
     - Telnet access
     - Password protection

Note: Missing option numbers are not applicable to this product.