

## Dual Channel and Redundant Amplitude/Slope Equalizer Systems


**DLE**

**DL1E**

**RL1E**

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)

Frequency (MHz)	Dual Channel Model Numbers		1:1 Redundant Model Numbers
50 – 90	DLE-050090	DL1E-050090	RL1E-050090
100 – 180	DLE-100180	DL1E-100180	RL1E-100180
950 – 1450	DLE-950145	DL1E-950145	RL1E-950145
950 – 1750	DLE-950175	DL1E-950175	RL1E-950175
950 – 2150	DLE-950215	DL1E-950215	RL1E-950215

### Options

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

## Specifications

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

## 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

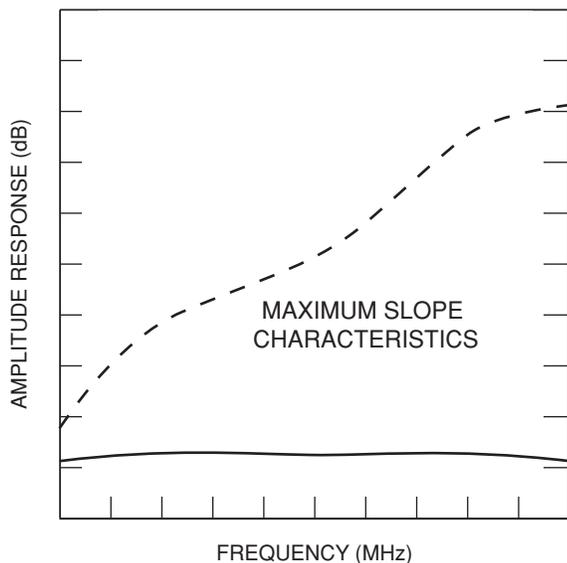


FIGURE 1

### L-Band Slope Adjustment

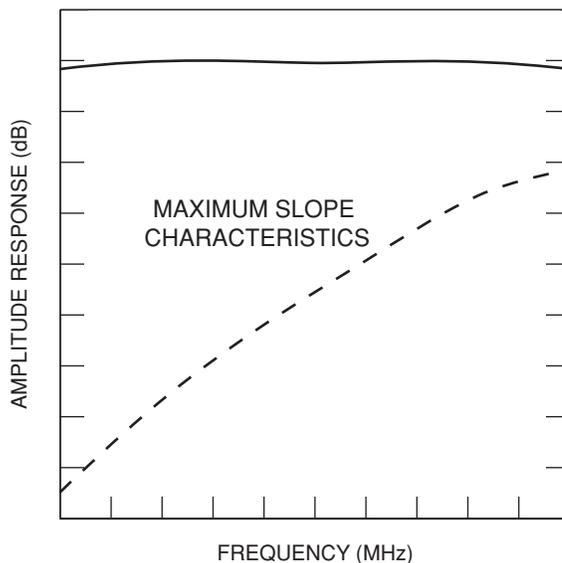


FIGURE 2

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