

Redundant Line Driver Amplifier (LDA) systems minimize system downtime due to LDA failure by providing a spare LDA and an automatic means of switching to the spare upon failure of a primary LDA.

A 1:1 system provides one spare LDA for one primary LDA. A 1:2 system provides one spare LDA for either of two primary LDAs.

Used to overcome cable losses, the systems are designed for installation at satellite earth stations in standard 19-inch EIA equipment racks. The systems are designed to house LD-13S Series Ku-Band LDAs.

Operating Modes

- *Automatic Mode*
In Automatic mode, if a failure is detected in an on-line amplifier, the standby amplifier is switched online. Typical switchover time is 100 milliseconds. For 1:2 systems, in the case that both on-line amplifiers fail, priority is selectable to either Pol 1 or Pol 2. For either 1:1 or 1:2 systems, the unit will not automatically switch to a defective amplifier.
- *Manual Mode*
The amplifiers can also be manually switched from the front panel or remotely. In Manual mode, automatic switching will not occur upon fault detection, although the monitor and alarm circuits still function.

FEATURES:

- Standard 19" rack panel, 3.5" high
- Dual redundant power supplies
- Worldwide AC input capability
- Amplifier bias current monitoring to detect faults
- Manual or automatic operation
- Manual override switch control on rear panel
- Serial I/O
- Offline I/O with isolators
- Cooling fan
- Gain matching of amplifiers to ± 1 dB

OPTIONS:

- Variable attenuators located either at the output of each LDA or at each system path output

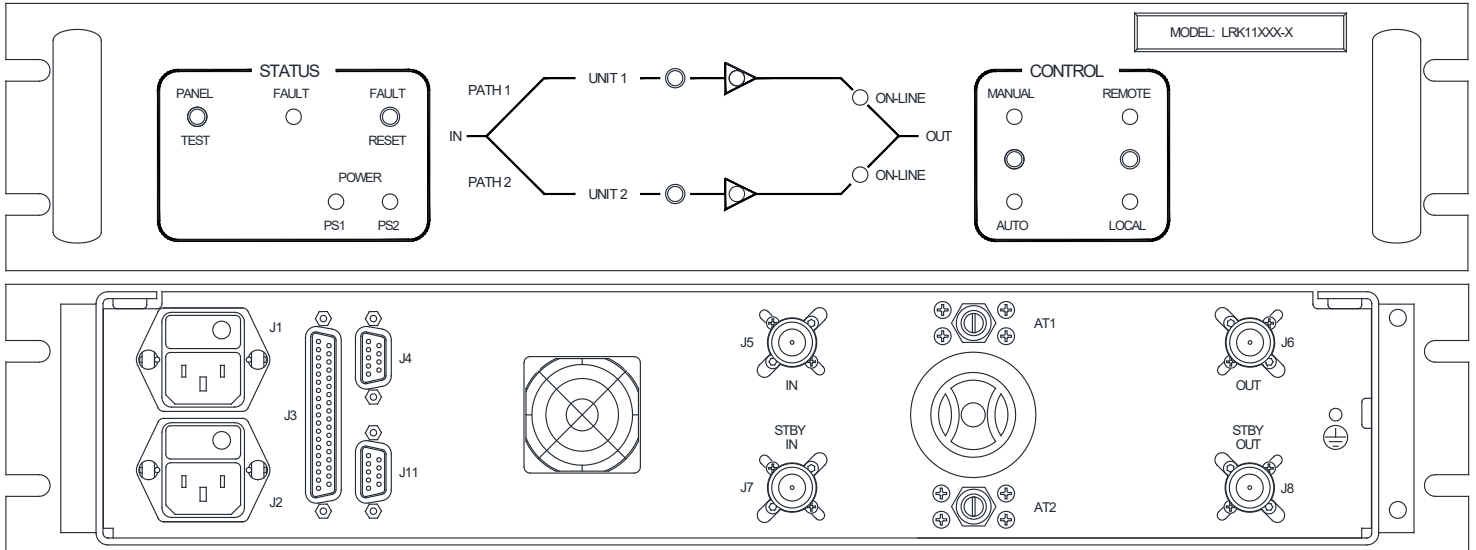
Local or Remote Control

The systems include provision for remote status monitoring and operation. Typical uses are for sending status information to a centralized monitor and control system or for remotely controlling the system from a nearby building. All Local front panel features can be remotely controlled and monitored, except for the Remote/Local switch. In Remote mode, the front panel controls are inoperative, but the indicators continue to reflect the current operating state of the system. Remote status outputs are Form "C" dry relay contacts capable of switching up to 100 VDC at 100 mA. Remote control inputs are opto-isolator coupled for noise and common mode ground loop rejection.

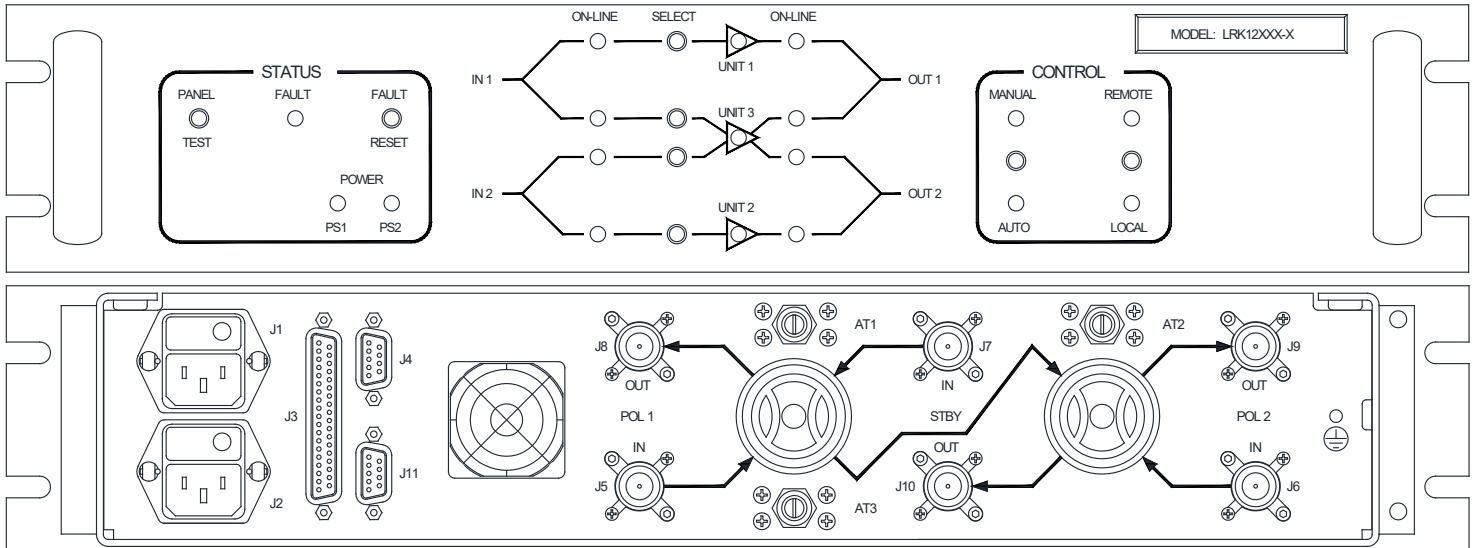
Parameter	Notes	Specification
Frequency Range	Band "E" Band "R" Band "M" Band "V"	10.95 to 12.75 GHz 10.70 to 12.75 GHz 14.00 to 14.50 GHz 13.75 to 14.50 GHz
System Gain	LDx-13S22x amplifiers LDx-13S32x amplifiers LDx-13S42x amplifiers	18 dB min., 21 dB typical 28 dB min., 31 dB typical 38 dB min., 41 dB typical
Gain Flatness		±0.75 dB max. over the full band ±1.5 dB max. with attenuators (Option)
Gain Slope		±0.25 dB max. per 40 MHz ±0.30 dB max. with attenuators (Option)
Gain Match		1 dB max. between LDAs
Noise Figure	At +23 °C	5.5 dB typical, 6.0 dB max.
Power Output at 1dB compression (P_{1dB})	LDx-13Sxx2 amplifiers LDx-13Sxx3 amplifiers	+13 dBm min., +15 dBm typical +18 dBm min., +20 dBm typical
3rd Order Output Intercept Point (OIP₃)	LDx-13Sxx2 amplifiers LDx-13Sxx3 amplifiers	+23 dBm min., +25 dBm typical +28 dBm min., +30 dBm typical
Group Delay per 40 MHz	Linear Parabolic Ripple	0.03 ns/MHz max. 0.003 ns/MHz ² max. 1.0 ns peak to peak max.
VSWR	Input (50 ohms) Output (50 ohms)	1.20:1 typical, 1.25:1 max. 1.20:1 typical, 1.25:1 max.
Maximum Input Power	Damage threshold	+10 dBm max.
Connectors	RF Input/Output Remote input Alarm output Serial I/O (RS-232/-422/-485)	Type N Female (50 ohms) 9-pin D Male 37-pin D Male 9-pin D Female
Operating Modes		Manual or Automatic
Alarm Outputs	Form "C" contacts	100 VDC/100 mA
Remote Inputs	Control inputs	Contact closure to ground; withstand 5 V, sink 5 mA
Power Requirements	Voltage (autoranging) Frequency Power	90-135 VAC or 175-264 VAC 47 Hz min., 63 Hz max. 50 W typical
Size		19"W x 3.5"H x 24"D 483 mm W x 89 mm H x 610 mm D
Temperature Range	Operating	0°C to +50 °C

Specifications shown are for LD-13S Series LDAs. See product data sheet 16838.

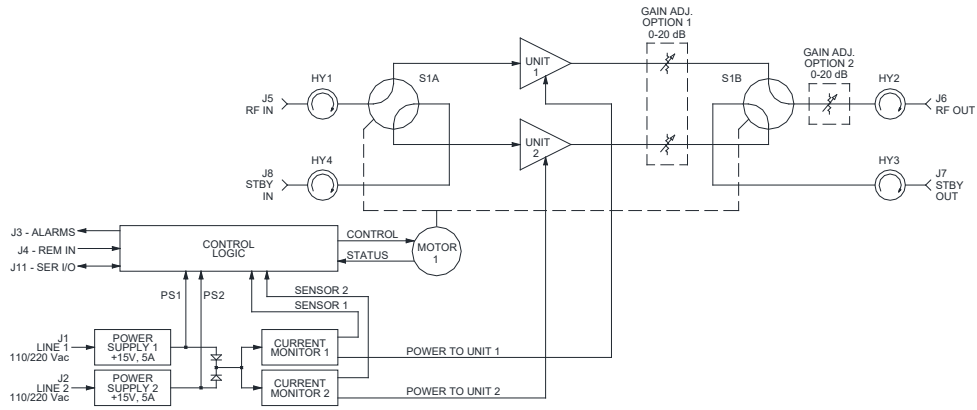
1:1 FRONT AND REAR PANELS:



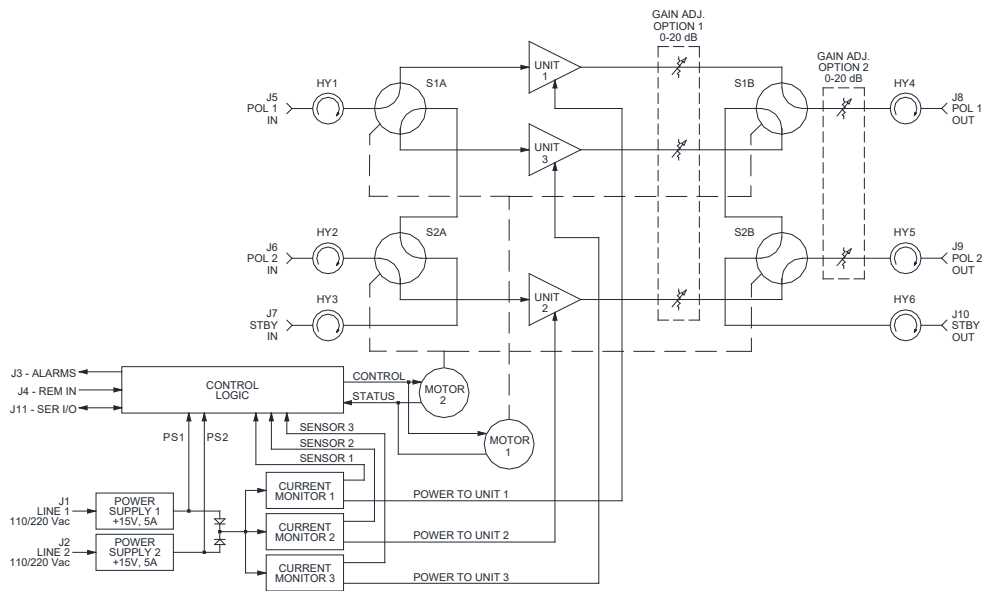
1:2 FRONT AND REAR PANELS:



1:1 System Block Diagram



1:2 System Block Diagram



**Part Number/Ordering Information,
Ku-Band Redundant LDA Systems**

LRK1 **-**

System Type:	1:1	1				
	1:2	2				
LDA Options:						
Frequency	10.95–12.75 GHz				E	
	10.70–12.75 GHz				R	
	14.00–14.50 GHz				M	
	13.75–14.50 GHz				V	
Gain	18 dB min.				2	
	28 dB min.				3	
	38 dB min.				4	
P ₁ dB	+13 dBm min.				1	
	+18 dBm min.				2	
System Options:						
Variable Attenuators	None (standard)					X
	1 per individual amplifier					1
	1 per system path output					2

Examples:	Order Number
<ul style="list-style-type: none"> 1:1 system with 10.95–12.75 GHz LDAs, 18 dB gain +13 dBm P₁ dB, no system options 	LRK11E21-X
<ul style="list-style-type: none"> 1:2 system with 10.70–12.75 GHz LDAs, 38 dB gain +18 dBm P₁ dB, 1 attenuator/amplifier (3 total) 	LRK12R42-1
<ul style="list-style-type: none"> 1:2 system with 14.00–14.50 GHz LDAs, 28 dB gain +18 dBm P₁ dB, 1 attenuator/system output path (2 total) 	LRK12M32-2



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For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI before using this information for system design.

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