



LIA001X12-10. 12 Channel Phase Matched Low Noise Amplifier Array

The LIA001X12-10 is a phase matched high dynamic range 'Line' or 'Cable' amplifier array designed for use in HF phased antenna. The unit contains 12 independent HF channels which cover 2 – 30MHz with built in filter for < 1.5MHz broadcast band. Each channel has low noise and high intercept performance providing exceptional dynamic range. Lightning protection is built in. High quality components are used throughout all assembled into a 19 inch 2U corrosion proofed chassis.



Figure 1 - Main Unit

Application

In large HF antenna receiving phased arrays and in particular the Circular Disposed Antenna Array, there can be substantial loss prior to the main beam former. This loss manifests itself as poor system S/n especially in the higher HF frequencies where cable losses are higher and atmospheric noise is less dominant.



Figure 2 – Easy module removal

Stancom has developed a 12 channel LNA Array which provides modest gain of 10dB+ and noise figures approaching 2dB. Used in the main hub of a CDAA array it improves system performance significantly.

Each Low noise phase matched amplifier contains a high reject 'LF Broadcast filter' and low noise high intercept RF amplifier. The amplifiers are built as modules to facilitate maintenance. It allows removal without disturbing all other modules present.

Built in test (BITE) is featured and each module is independently monitored down to individual active elements and can display its alarm condition on the module itself and group on the front with a global STATUS indicator.



Figure 3 – Alarm display convenient and effective

Specification: (For each channel)

Electrical:

	Limits
Frequency Range	2 – 30MHz
Gain Max	<+12dB
Gain Min	>+10dB
Gain Flatness	+/- 1dB
Phase Match between LIA001 modules	+/- 1.0° (Max)
Gain Match between LIA001 modules	+/- 0.5dB (Max)
Noise Figure (with Filter)	Typ 2.3dB, Max 3dB
TOIP (Output Intercept)	>+33dBm
Second order (Output Intercept)	>+70dBm
Reverse Isolation	>13dB
Input Impedance	50Ω
Output Impedance	50Ω
Input return loss	>14dB. (VSWR < 1.5:1)
Output Return Loss	>14dB. (VSWR < 1.5:1)
Connectors Input and Output	BNC type Female
Lightning Protection (Input)	2kV 1.2uS rise time, 50uS duration. (IEC61000-4-5 Level 3)
Health Monitoring	Internal monitoring and LED Alarm
Filter Rejection	< -50dBc, DC-1.5MHz, (With reference to pass-band).
Power	Mains 110/220V +/- 10% ac. Selectable. Power 35W
AC Mains Power Connector	3 Pin IEC male connector.
AC Mains Switch	Illuminating Mains Switch is front panel located
AC Mains Fuse	0.5A, Rear panel mounted
DC Fuse	2A, Front panel mounted
110/220V AC +/-10%, 47-63Hz	Manual Rear Panel selector

Alarms

Unit has BITE to monitor all amplifiers, in addition a group front panel 'STATUS' RED/GREEN LED is included.

Mechanical

Connectors:	I/P	12 x BNC – Female
	O/P	12 x BNC – Female
Dimensions:		19", 2U rack mount x 400 deep including connectors

Environmental:

Temperature:	0 to +50°C
Weatherproofing	Indoor use only.