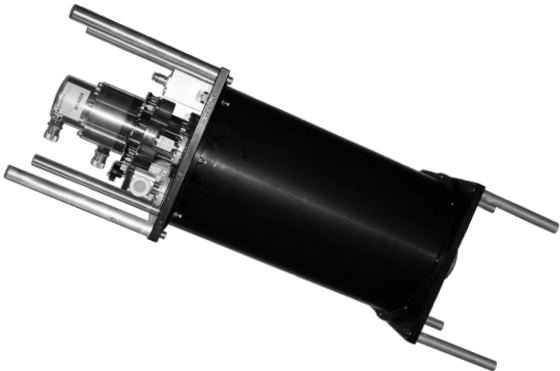


S band cryogenic ultra-low LNA for radioastronomy, deep space and TT&C



USING CUTTING-EDGE TECHNOLOGY, THE NEW S CRYOGENIC ULTRA-LOW LNA FAMILY OFFERS OUTSTANDING PERFORMANCE



Innovative technology

Ultra-low noise amplifiers are necessary for satellite missions where link margins are critical, for example for Deep Space Missions. The use of cryogenically cooled LNAs can provide improved ground station G/T at a fraction of the cost of increasing the antenna diameter.

Celestia Callisto has developed cryogenic low noise amplifiers in S band for the **ESA ground station network**. Our designs use **HEMT microwave devices**, which are well suited for cryogenic operation.

The LNA systems use a 2-stage Helium closed cycle refrigerators, which maintains the HEMT amplifier at a temperature of 15 Kelvin inside a vacuum Dewar. The refrigerator is designed for continuous operation with service intervals of more than one year.

Efficiency & Reliability

Each unit is fully tested and delivered with a complete factory acceptance test report.

Exceptional performance combined with reliability and cost effectiveness.

Configurability

The unit can operate in any orientation on movable antenna structure.

Maintenance

An improved maintenance concept is implemented on new cryogenic LNAs. This concept uses a sleeve system which enables the user to replace the refrigerator without opening the sealed enclosure.

The main advantage of this concept is to drastically reduce the down-time of the operational system (typically from 36 hours to 12 hours) and to avoid the need of having a specialist cryogenic technician on-site for services or repairs. The sleeve design means that first level maintenance actions can be carried out by the end user's own maintenance staff after a Celestia Callisto training course. The replaced refrigerator unit is simply shipped back to the factory for service or repair.

Key Features

- * Radioastronomy, deep space and TT&C applications
- * Superior performance
- * High reliability & efficiency
- * Ultra-low noise performance
- * High gain & low ripple
- * Low input & output VSWR
- * Filtering for TX protection
- * Single or multi channel/bands models
- * Patented technology for vacuum and insulation performance
- * Restarting without vacuum pump after a power outage
- * Reduced maintenance down time



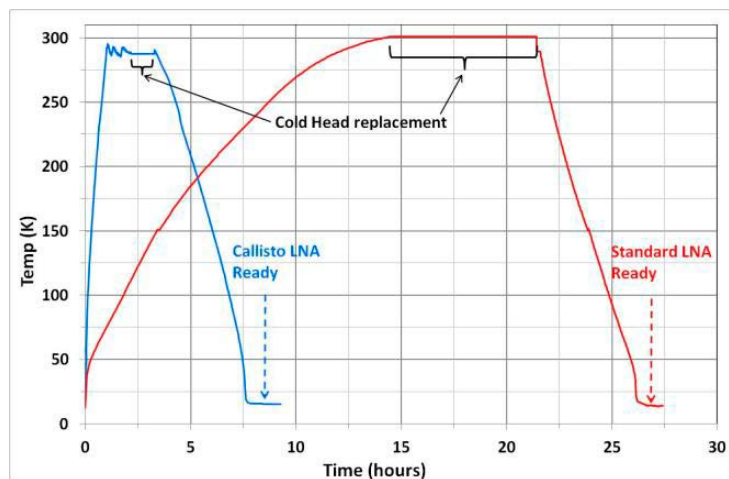
OPTIONS

- * Indoor power supply unit
- * PC based automatic monitoring system
- * Supply of a vacuum pump
- * Built-in test equipment for noise measurement
- * Input/output switching redundant configuration
- * Operations and maintenance training course
- * Operations and maintenance training DVD

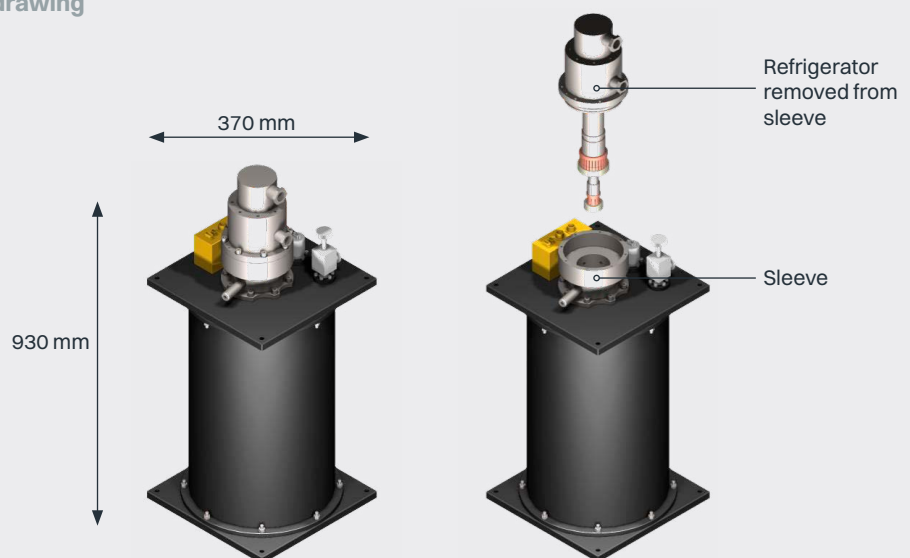
☑ Cryo-LNA performance

Operating freq. range	2.2-2.3 GHz
Noise temperature	10 K
Input VSWR	> 1.4:1
Gain	> 55 dB
Base temperature	15K
Cooldown time	5 hrs
Warmup time	2 hrs
Service interval	13000 hrs
Group delay	<40 ps

☑ Typical measured data



Outline drawing



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Information contained in this document is subject to change without notice.

Unless otherwise specifications, tests have been done at 23 °C.

Dimensions are in "mm" and after treatment
Tolerance according to ISO 2768-f