

MAIN FEATURES

- ❖ Very low noise
- ❖ High reliability
- ❖ Weather-proof housing
- ❖ Ethernet control
- ❖ Redundant configuration



TECHNICAL DESCRIPTION OF THE 1:2 REDUNDANT SYSTEM

The BJE10 Q-band Redundant LNA system consists of two separated main sub-blocks, such as LNA Plate called as BJE110, and Indoor Controller called as BJE110, according to the block diagram below. The LNA Plate is designed for hub-mounted conditions, as it is going to be assembled to the antenna, while the indoor controller is located in a 19" rack, and it will be used in the control room to monitor and control the redundant LNA system. The indoor controller has redundant hot swappable AC/DC power supply for higher reliability. The complete system can handle two additional LNA units for tracking purposes.

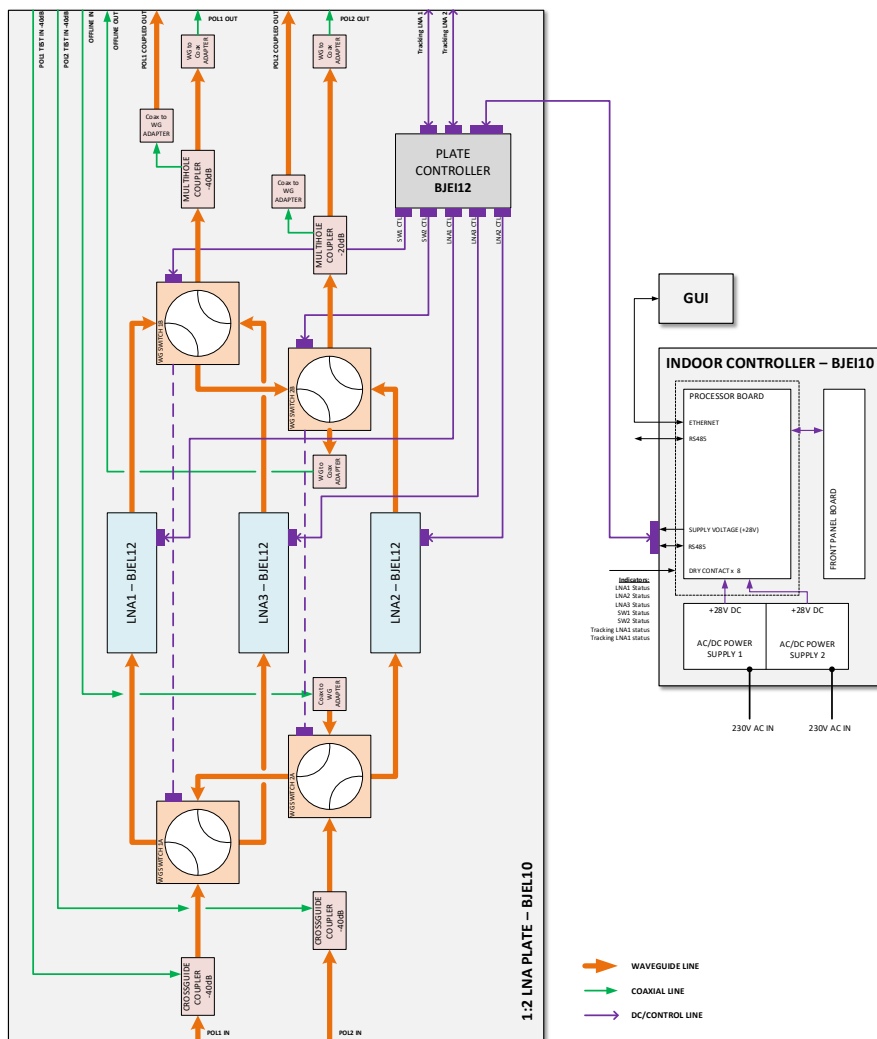


Figure 1. Q-band 1:2 redundant system

MODE OF OPERATION

In normal condition two LNAs (LNA1 and LNA2) are operating simultaneously, one for receiving polarization_1, and the other one for receiving polarization_2. In case of failure in LNA1 or LNA2, the third spare LNA (LNA3) can be switched into the RF line instead of the faulty LNA. The switching is performed by the waveguide/coaxial switches according to the schematic. The switching mode can be "Auto" or "Manual". In case of manual mode, the switches can be controlled directly by the operator, while in auto mode, the switching is decided by the indoor controller M&C circuitry. If the monitored parameters of the operating LNA are out of the normal range, then the monitoring logic labels that LNA as faulty, and switches the spare LNA instead the faulty one automatically.

There are also coupled ports available to be able to monitor the RF lines without disconnecting them from the system. OFFLINE IN and OFFLINE OUT ports can be used for monitoring the spare LNA.

The LNA plate is located in the hub, and can be fully controlled and monitored by the indoor controller unit. The communication interface between the plate and the indoor controller is RS485. M&C functions are available both in local and remote mode. In local mode, the operator is using the front panel buttons and LCD display, while in remote mode a PC or notebook is connected to the indoor controller via the Ethernet interface. In this case the operator can use the supplied GUI for the M&C functions.

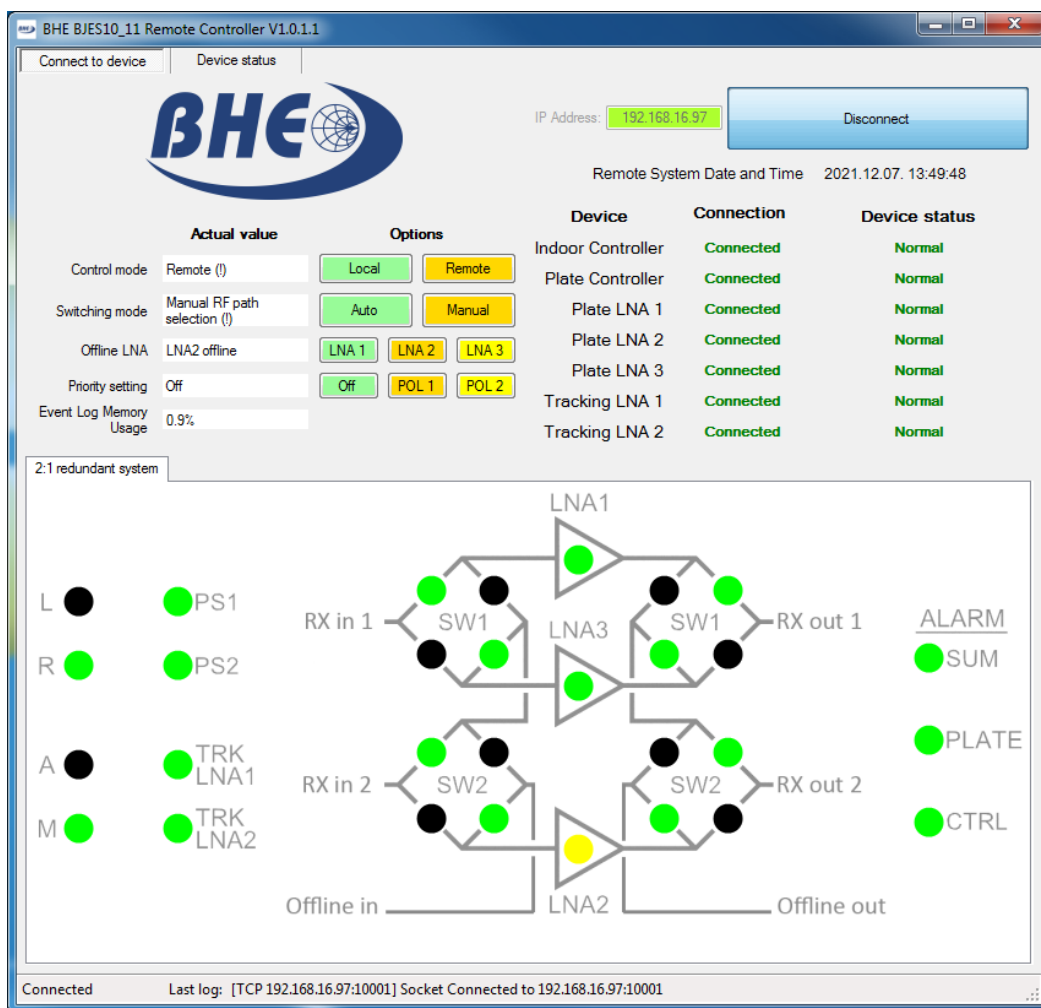


Figure 2. GUI control screen (summary)

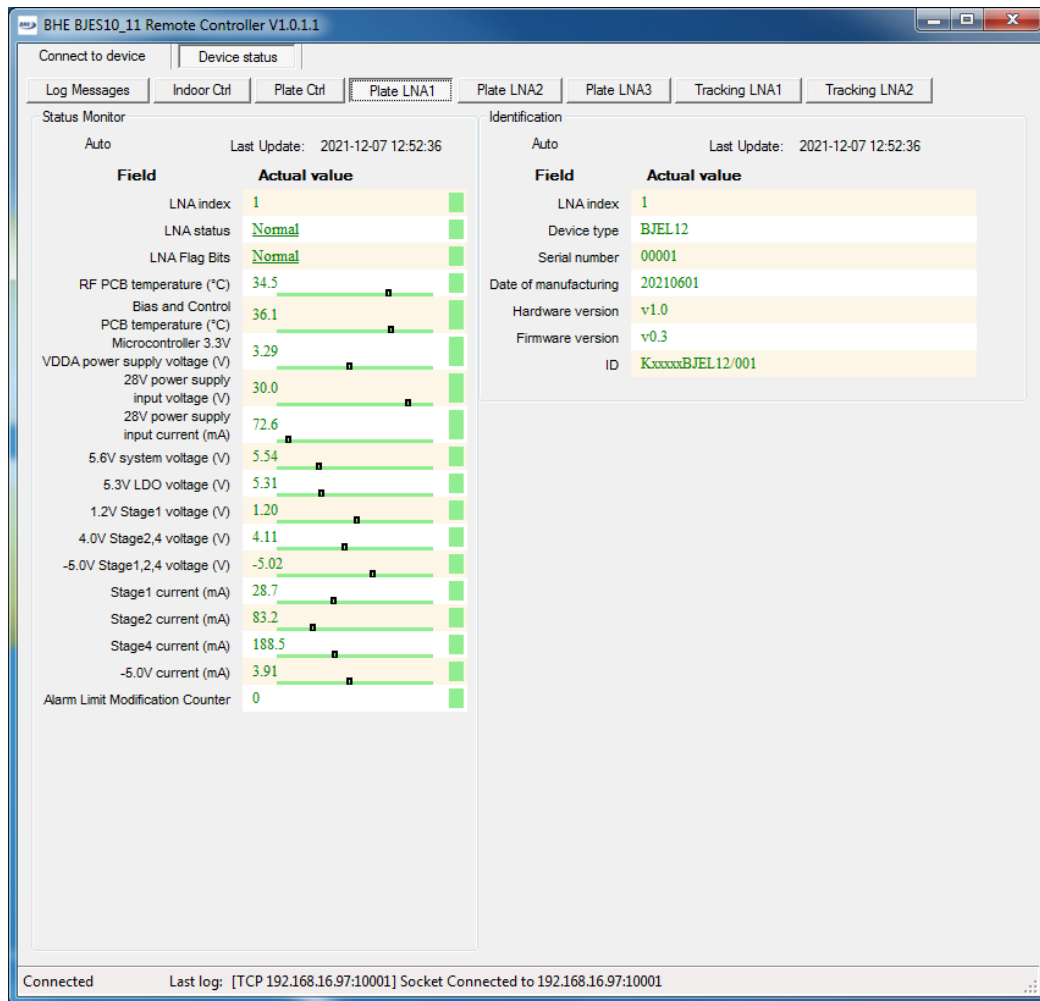


Figure 3. GUI control screen (single LNA details)

LNA PLATE SPECIFICATIONS (BJES10)

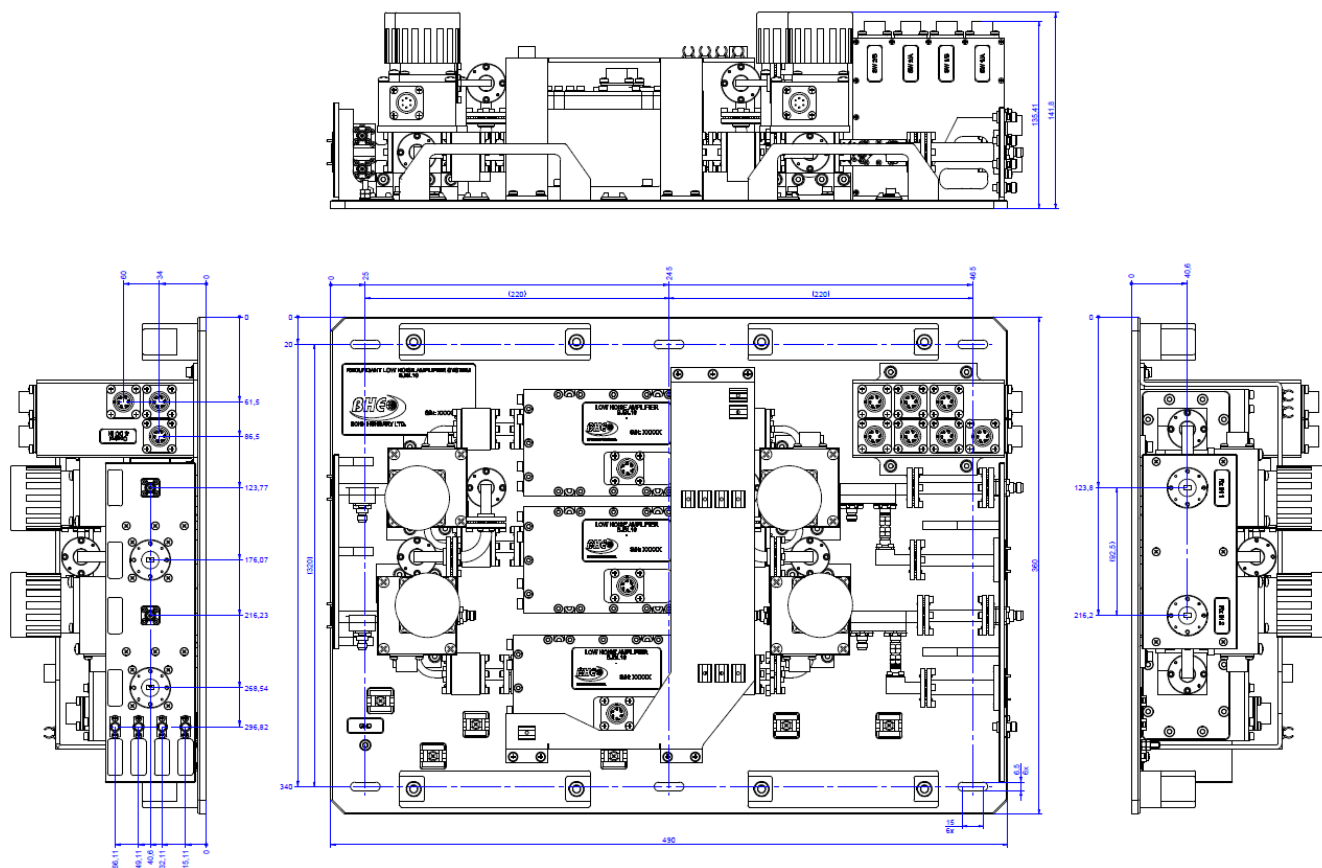
GENERAL CHARACTERISTIC	
Frequency Band	37.5 to 42.5 GHz
Linear Gain	50dB min. (40dB option)
Gain Flatness	3dB pk-pk in full band 1.7dB pk-pk in any 500 MHz 0.5dB pk-pk in any 40 MHz
Gain stability @ constant temperature	0.5dB pk-pk / 24hours
Gain variation over operating temperature range	-0.15 dB/°C max
Gain dispersion between LNA paths	2.5dB pk-pk (for same frequency)
Isolation between input ports	50dB
Input Noise Temperature (Noise Figure)	260K @ Input1 with LNA1 290K @ Input1 with LNA3 260K @ Input2 with LNA2 290K @ Input2 with LNA3
Noise Temperature variation over temperature	1.5 K/°C typ.
1 dB Compression	+10 dBm min.
Output 3 rd Order Intercept Point	+20 dBm min.
AM/PM Conversion	0.05 °/dB max. @ Pout= -5dBm
Maximum input power (damage level)	-10dBm (in operational frequency band)
Max. input power in 27-31 and 47.2-52.4GHz bandwidth	-45dBm (without degradation of RF performance)
Input VSWR	1.6:1
Output VSWR	1.4:1
Air leakage	no air leak with an overpressure of 40mbar
Group delay in full band	2.5ns pk-pk
Group Delay in any 40MHz	Linear: 0.02 ns/MHz Parabolic: 0.001 ns/MHz ² Ripple: 0.1 ns
RF Input Interface	WR22, UG-383/U flange
RF Output Interface	WR22, UG-383/U flange (option: 2.4mm – Female)
Test port connectors	2.4mm - Female
Offline path connectors	2.4mm - Female
DC & Control Interface	PT02E-10-6P (Miniature cylindrical)
Tracking LNA1 interface	PT02E-10-6S (Miniature cylindrical)
Tracking LNA2 interface	PT02E-10-6S (Miniature cylindrical)
Supply Voltage (LNA plate is supplied by the indoor controller)	+ 28V DC
Power Consumption	20W typ.
Communication between LNA plate and indoor controller	RS485
Operating Temperature Range	-0°C to +50°C -20°C to +60°C (option)
Mechanical dimensions	490 x 360 x 200mm
Weight	14kg

Specifications are subject to change without notice.

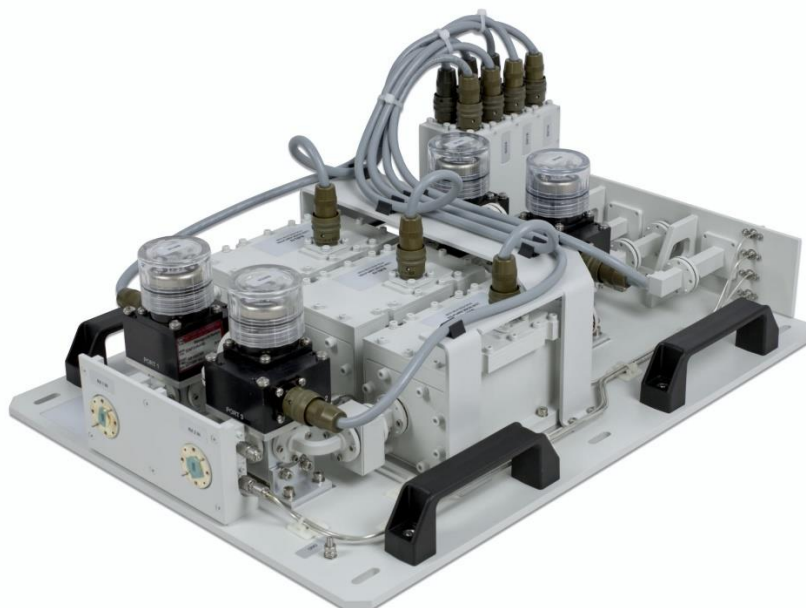


BJES10 Q-band 1:2 Redundant LNA system

OUTLINE DRAWING (mm)



BJEL10 LNA PLATE PHOTO

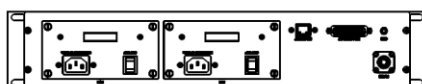
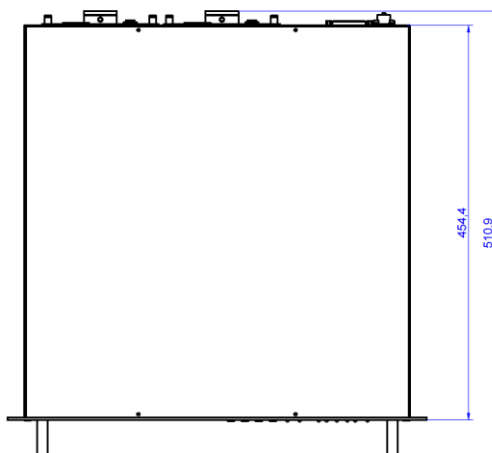
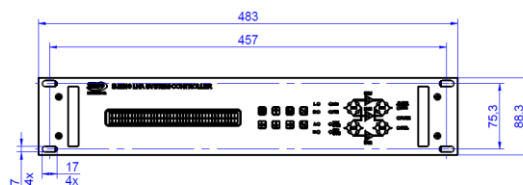


INDOOR CONTROLLER SPECIFICATION (BJE10)

GENERAL CHARACTERISTIC	
Outline dimensions	19" x 2HU x 510mm
AC input	Hot swappable redundant AC power supply 90-250VAC / 47-63Hz
Plate Power & Control interface	+28V DC RS485 (PT02E-10-6S)
Remote control interface	Ethernet (RJ45)
Dry contact interface	LNA1 status; LNA2 status; LNA3 status SWITCH1 status; SWITCH2 status TRACKING LNA1 status; TRACKING LNA2 status (25-pin DSUB female)
Standard cable length to LNA plate	50m
LCD display	2 x 40 characters
Control functions	see User Manual
Operating temperature range	0°C to +40°C
Weight	7.2 kg

Specifications are subject to change without notice.

OUTLINE DRAWING





BJES10 Q-band 1:2 Redundant LNA system

BJE10 INDOOR CONTROLLER PHOTOS



ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
BJES10K11107	Q-band 1:2 redundant LNA system

DOCUMENT REVISION

DOCUMENT NAME	REVISION	DATE
BJES10-LM-K11107-V01	V01	2022/10/24