

...designed for perfect signals

## N+1 redundant L-Band Line Amplifier, 1+1 to 4+1 (variable gain 0 to +40dB)

The HQR445C is a compact, flexible and modular N+1 redundant L-Band line amplifier system built into a 1RU/19" rack mount chassis. The variable gain adjustment ranges from 0 to 40dB (1dB steps) while it also supports slope equalization so to achieve best performance within the RF distribution chain.

The HQR445C chassis holds up to five high dynamic HQA45MG amplifier modules (950 – 2150MHz or 850 – 2700MHz) thus allowing an amplifier redundancy operation from 1+1 to max. 4+1 (field expandable, hot-swappable).

The redundancy switching between any of the active and the hot-standby amplifier modules is done by a high performance RF switch with a very short switchover time assuring a stable signal transmission at any time.

The unit also features RF power monitoring, threshold alarming and comes with 1:1 redundant dual power supply (hot-swappable).

The front panel OLED display and keypads allows easy local monitoring and configuration. Remote configuration and monitoring is possible via its rear side Ethernet-Interface (WebGUI, SNMP).

All active components of the unit such as amplifier modules, power supplies, ventilators, CPU and the OLED display are permanently monitored and hot-swappable for ease of expansion and/or replacement

This flexible, modular and expandable N+1 line amplifier is perfectly suited for RF distribution infrastructures in Teleports, Satellite Earth Stations, as well as Broadcast- and Broadband facilities wherever accurate RF power, highest stability and availability is necessary.



### FEATURES & BENEFITS

- ▶ Space saving and compact 1RU/19" rackmount design
- ▶ Supports L-Band (950 – 2150MHz) and extended L-Band 850 – 2700MHz, depends on module
- ▶ Allows amplifier redundancy configuration from 1+1 to max. 4+1 (field expandable, hot-swappable)
- ▶ Modular concept for ease of replacement and maintenance
- ▶ Variable gain adjust 0 to 40dB, 1dB steps (MGC/AGC)
- ▶ Slope equalization 0 to 7dB, 1dB steps
- ▶ RF power monitoring for all amplifier modules (Input & Output)

- ▶ Threshold alarm function and switchable output limiter
- ▶ 1:1 redundant dual power supply (hot-swappable)
- ▶ MTTF Counter and warning function for power supplies
- ▶ Temperature controlled fan speed operation
- ▶ Local configuration and monitoring via front panel OLED display & keypads
- ▶ Remote configuration and monitoring via Ethernet-Interface, (WebGUI/SNMP)



## TECHNICAL SPECIFICATIONS

<b>Dimensions:</b>	1RU/19" rack mount
<b>Power Supply:</b>	85 – 230V, 50/60Hz, 1:1 redundant (hot-swappable)
<b>Power Consumption:</b>	<10W
<b>Frequency Range:</b>	950 – 2150MHz (L-Band Module HQA45MG) 850 – 2700MHz (Extended L-Band Module HQA45MG2700)
<b>Input/output connectors:</b>	50Ohm SMA(f)
<b>Input Return Loss:</b>	16dB typ. (no slope) (L-Band Module HQA45MG) 15dB typ. (no slope) (Extended L-Band Module HQA45MG2700)
<b>Output Return Loss:</b>	14dB min. 16dB typ.
<b>Frequency Response:</b>	±0,5dB typ., ±1,0dB max. (L-Band Module HQA45MG) ±0,1dB max. in 40 MHz Window (L-Band Module HQA45MG) ±1,0dB typ., ±1,5dB max. (Extended L-Band Module HQA45MG2700) ±0,15dB max. in 40 MHz Window (Extended L-Band Module HQA45MG2700)
<b>Variable Gain Control:</b>	0 to 40dB (accuracy ±0,25dB), 1dB steps
<b>Gain Mode:</b>	MGC/AGC
<b>Slope equalization:</b>	0 to 7dB, 1dB steps
<b>Max. RF Input Power:</b>	+13dBm (no damage)
<b>Max. RF Output Power:</b>	+24dBm
<b>Noise Figure:</b>	<6dB @ full gain
<b>Spurious Free Dynamic Range:</b>	< -76dBm
<b>IMA3/OIP3:</b>	> -40dBc typ. @ +17dBm / OIP3 +38dBm min.
<b>1dB Compression Point:</b>	+23dBm @ full gain
<b>Group Delay:</b>	0,03ns/MHz typ., 1ns/peak to peak max.
<b>Amplifier Monitoring:</b>	Current Draw and RF Power
<b>Amplifier Switchover Time:</b>	<100msec (depends on amplifier qty)
<b>Threshold Alarm:</b>	Adjustable -40dBm to +10dBm
<b>Output Limiter:</b>	Adjustable -30dBm to +17dBm
<b>Local Access/Configuration:</b>	Front panel OLED Display/keypads
<b>Remote Access/Configuration:</b>	100Mbit Ethernet-Interface (WebGUI, SNMPv2c), RS232
<b>Status LED's:</b>	At each amplifier module
<b>MTBF/MTTR:</b>	>400kHrs at 25°C / 24 hours
<b>Operating Temperature:</b>	0°C to 45°C
<b>Storage Temperature:</b>	-10°C to 70°C
<b>Humidity:</b>	90%, non-condensing
<b>RoHS:</b>	Compliant

## ORDER INFORMATION

Type	Type No.:	Short Description
HQR445C-50S	9001099	N+1 redundant L-Band Amplifier Chassis, 1+1 to max. 4+1 redundant operation, 50Ohm SMA(f)
HQA45MG	9001260	Amplifier Module, L-Band 950 – 2150MHz
HQA45MG2700	9001100	Amplifier Module, Extended L-Band 850 – 2700MHz