

# HQA series

## Variable gain L-Band Line Amplifiers (Single & Quad)



### GENERAL

The HQA series represents high dynamic and professional L-Band line amplifiers with variable gain control range of 0...30dB or 10...40dB. It combines the stand-alone „HQA101C“ or the „HQA104C“ 1RU/19" rack-mount chassis together with the corresponding amplifier modules „HQA2535M“ or „HQA3040M“. The „HQA2535M“ amplifier module allows variable gain control of 0...25dB (standard gain mode) or 5...35dB (high gain mode) while the „HQA3040M“ amplifier module allows variable gain control of 0...30dB (standard gain mode) or 10...40dB (high gain mode) so to achieve best performance within the network.

The „HQA101C“ chassis can be equipped with one of the available HQA amplifier modules while the „HQA104C“ chassis can hold four amplifier modules, each amplifier module operates independently and is hot-swappable.

The HQA series amplifiers additionally feature 1:1 redundant dual power-supply (hot swappable), variable gain (MGC/AGC), slope equalization, RF power monitoring, switchable LNB-supply and a 10MHz external reference signal input port. An integrated RF power detector measures the RF output power with 70dB dynamic range for each amplifier individually. The HQA are equipped with a front panel LC-Display/keypads for user friendly local configuration and status LED's indicating amplifier and power-supply status. Remote configuration and monitoring is available via a rear side Ethernet or RS232/485 interface (WebGUI, SNMP) while it can also be integrated into a management and control system (NMS or M&C) via SNMP. This high quality amplifiers provide various advantageous functionalities, superior RF performance and excellent signal quality. It is perfectly suited for versatile application areas e.g for compensation of passive RF distribution devices and cable loss. The HQA series is an ideal fit for any RF distribution infrastructure where accurate RF power, highest stability and availability is necessary such as Teleports, Satellite Earth Stations, Broadcast facilities or Cable/IPTV headend stations.



### FEATURES & BENEFITS

- Space saving 1RU/19" rack-mount design
- Single or Quad line amplifier population per chassis
- Variable gain control range 0...25dB (standard gain mode) or 5...35dB (high gain mode) with HQA2535M amplifier module
- Variable gain control range 0...30dB (standard gain mode) or 10...40dB (high gain mode) with HQA3040M amplifier module
- Variable gain-control selectable as MGC (Manual Gain Control) or AGC (Automatic Gain Control)
- Supports slope-equalization 0...9dB, 1dB steps
- Equipped with front side monitoring port (-20dB)
- RF power monitoring (input/output) for each amplifier individually
- Threshold alarm function with switchable output limiter
- Switchable LNB-supply (13/15/18V, 22kHz, 400mA) with LNB current monitoring and alarm shut-off
- 10MHz external reference signal input, rear side 50Ohm SMA(f)
- Hot-swappable amplifier modules
- Local access & configuration via front side LC-Display/keypads
- Front side status LED's indicating amplifier & power-supply status
- Remote configuration & monitoring via Ethernet-Interface, RS232/485 (WebGUI/SNMPv2c)
- 1:1 redundant dual power supply (hot swappable)

### ORDER INFORMATION

- **HQA101C-50:** HQA Amplifier Chassis, 1 amplifier slot, 50Ohm SMA(f), 1RU/19" rack-mount
  - **HQA101C-75:** HQA Amplifier Chassis, 1 amplifier slot, 75Ohm F(f), 1RU/19" rack-mount\*
  - **HQA104C-50:** HQA Amplifier Chassis, 4 amplifier slots, 50Ohm SMA(f), 1RU/19" rack-mount\*
  - **HQA104C-75\*:** HQA Amplifier Chassis, 4 amplifier slots, 75Ohm F(f), 1RU/19" rack-mount\*
- Amplifier module variants**
- **HQA2535M:** HQA active line amplifier module, 00...25dB & 5...35dB variable gain control range
  - **HQA3040M\*:** HQA active line amplifier module, 00...30dB & 10...40dB variable gain control range

\*upon request

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### TECHNICAL SPECIFICATIONS

#### CHASSIS SPECIFICATIONS

	HQA101C-50/75	HQA104C-50/75 (Four amplifier slots)
➤ Chassis type:	1RU/19" rack-mount	1RU/19" rack-mount
➤ Dimensions:	85...230V, 50/60Hz	85...230V, 50/60Hz
➤ Power supply:	1:1 redundant (hot-swappable)	1:1 redundant (hot-swappable)
➤ Power supply redundancy:	>10W	>15W
➤ Power consumption:	1 slot (HQA101C)	4 slots (HQA104C)
➤ Amplifier module slots:	50Ohm SMA(f) or 75Ohm F(f)*	50Ohm SMA(f) or 75Ohm F(f)*
➤ Impedance/connectors:	External, 50Ohm SMA(f)	External, 50Ohm SMA(f)
➤ 10MHz reference:	13/15/18V, 22kHz, 400mA	13/15/18V, 22kHz, 400mA
➤ Switchable LNB-supply:	LC-Display/keypads	LC-Display/keypads
➤ Local configuration:	100Mbit RJ45 Ethernet-Interface (WebGUI, SNMPv2c)	100Mbit RJ45 Ethernet-Interface (WebGUI, SNMPv2c)
➤ Remote configuration:	Amplifier modules & power supply status	Amplifier modules & power supply status
➤ Status LED's:	0...45°C	0...45°C
➤ Operating temperature:	-10°C...70°C	-10°C...70°C
➤ Storage temperature:	90% non condensing	90% non condensing
➤ Humidity:	Compliant	Compliant
➤ RoHS:		

\*upon request

#### AMPLIFIER MODULE SPECIFICATIONS

➤ Amplifier module types:	<b>HQA2535M:</b> 0...25dB @ standard gain mode / 5...35dB @ high gain mode <b>HQA3040M:</b> 0...30dB @ standard gain mode / 10...40dB @ high gain mode
➤ Frequency range:	950...2150MHz (L-Band)
➤ Gain control ranges:	0...25dB (Acc. ±0.25dB) @ standard gain mode / 5...35dB ((Acc. ±0.5dB) @ high gain mode 0...30dB (Acc. ±0.25dB) @ standard gain mode / 10...40dB ((Acc. ±0.5dB) @ high gain mode
➤ Gain steps:	1dB steps
➤ Slope equalization:	0...9dB, 1dB steps
➤ Monitoring port:	-20dB (front-side)
➤ RF power monitoring:	65dB dynamic range
➤ Output limiter:	adjustable -30dBm...+10dBm
➤ I/O Return-Loss:	14dB min.
➤ Frequency response:	±0.5dB, ±1dB max.
➤ Max. RF output power:	+17dBm, +23dBm max.
➤ Noise figure:	6dB @ 25dB gain / 5dB @ 35dB gain / 6dB @ 30dB gain / 5dB @ 40dB gain
➤ IMA3 @ +70dBm:	< -46dBc
➤ 1dB compression point:	23dBm
➤ Isolation:	> 50dB