



## HIGH POWER AMPLIFIER 400W Standard KU-BAND Outdoor HPA 3413BU with built-in BUC

ND SATCOM has been a supplier to the SatCom industry for over three decades and has built up an excellent reputation for consistently developing high-end satellite communication products at competitive prices for customers in more than 130 countries worldwide. Our team of dedicated engineers works closely together with customers worldwide to develop, tailor and adapt our product portfolio to deliver innovative broadcast and network solutions that fit evolving market requirements with superior reliability and quality.

As a system integrator for broadcasters and military forces operating worldwide, we design both indoor and outdoor HPAs whose modular construction is compact, reliable, easy to service and high performing. Our products are designed to adapt development to your operational needs, thus providing highly secure, custom-engineered solutions that have long established us as a trusted and reliable partner in satellite communications.

### Unrivalled RF Performance

Combines supreme power efficiency and low phase noise (typ. IESS 308/309) for a RF performance that is second to none.

### Efficient and Reliable

Our Electrical Power Conditioners designed for satellites operate with very low in-rush current (110%) and active power factor correction. Thus the power consumption, weight, and dimensions of the ND SATCOM HPAs are best of breed.

### Safe and Durable

For enhanced TWT longevity, the high voltage section is potted and all other electrical components are coated to protect against humidity and dust.

### Compact

Its light-weight (only 26kg or 57lbs) and small dimensions make it ideal for both transportable and compact fixed uplink stations.

### Easy to Maintain

All RF parameters can be monitored and controlled directly or by remote access.

### Rapid Response

- Quick delivery
- After-Sales Support: typically 1-week turnaround time
- Made in Germany: EUR1 certificate / no ITAR restrictions

### Options

- Integrated BUC and Linearizer
- Waveguide Switching System
- Remote control panel (outdoor versions)
- Water cooling
- Plug-in/plug-out exchange kit for CPI HPAs, including adaptation of interface protocol and all mechanical connections

**ND SATCOM**

powered by **ASP**

# HPA 3413BU

## RF SPECIFICATIONS

Frequency Range	13.75 - 14.50 GHz	
Flange Power	> 350 W, > 55.4 dBm	
IF Frequency	950 - 1700 MHz	
TWT Power	400 W Tube	
Gain at Rated Power	> 65 dB	
Small Signal Gain (10 dB OBO)	> 72 dB	
Gain Adjust	> 0 - 20 dB, min. step size 0.1 dB	
Gain Stability	< $\pm 0.25$ dB / °C / 24 hrs after 60 min warm-up	
Gain Slope	< 0.02 dB / MHz	
Gain Variation	< 1.0 dB / in any 80 MHz, < 2.5 dB / in any 500 MHz, < 5.5 dB / full band	
VSWR	< 1.4:1 Input < 1.2:1 Output (waveguide)	
Group Delay (in any 40 MHz)	< 0.03 ns / MHz linear, < 0.01 ns / MHz <sup>2</sup> parabolic, < 1 ns ripple	
Intermodulation (two equal carriers at total output power)	<b>Without Linearizer 3413BU</b> < -21 dBc at 6 dB below rated power	<b>With Linearizer 3413BUL</b> < -30 dBc at 4 dB below rated power (meets ASTRA access agreement 6.4.2 for FSS Band with rated power -2dB)
AM/PM Conversion	< 2.5° / dB at 7 dB below rated power, < 6° / dB at rated output power	
Noise Figure	< 15 dB max	
Phase Noise	Meets IESS 308/309	
Noise and Spurious Emissions	< -60 dBW / 4 kHz (inband) < -120 dBW / 4 kHz 10.7..12.7 GHz < -115 dBW / 4 kHz 18,0..19,0GHz	
Harmonic Output Suppression	< -80 dBc at rated output	
Conversion Scheme	Single up-conversion, frequency inversion	
<b>Physical</b>		
Input RF Connector	N-Jack Input / N-Jack Testport	
Output RF Connector	WR 75 Waveguide Output, grooved, UNC 6/32	
Dimensions (L X W X H)	611 x 457 x 136 mm	
Weight	< 26 kg / 57 lbs	
Cooling	Forced air min. 180 m <sup>3</sup> /h	
<b>Monitor &amp; Control</b>		
Serial Remote Interface	PT 851-00R12-10S50 RS422/RS485	
Alarm / Mute Interface	PT 851-00R12-10S50	
Parallel Remote Interface	PT 851-00R19-10S50	
Automatic Level Control	Activation via RC Protocol	
<b>Electrical Specifications</b>		
AC Power	110 to 240 VAC / 50-60 Hz, single phase	
Power Factor	> 95%	
Power Consumption	< 1250 W max.	
Inrush Current	< 110%	
CE Directive	73/23/EEC, 92/31/EEC, 89/336/EEC and 1999/5/EC	
<b>Environmental Specifications</b>		
Temperature Range (operational)	-40°C to +50°C	
Humidity	< 95% condensing at 40°C	
Shock and Vibration	For normal commercial transport	
Noise Level (cooling fan)	< 55 dBA measured in 1 m distance	

**HEADQUARTERS**  
 ND SatCom GmbH  
 Graf-von-Soden-Strasse  
 88090 Immenstaad  
 Germany  
 PHONE: +49 7545 939 0  
 FAX: +49 7545 939 8780  
 E-Mail: info@ndsatcom.com

**CHINA**  
 ND SatCom (Beijing) Co. Ltd.  
 PHONE: +86 10 6590 6869/6878

**MIDDLE EAST**  
 ND SatCom FZE  
 PHONE: +971 4886 5012

[www.ndsatcom.com](http://www.ndsatcom.com)

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