

# HIGH POWER AMPLIFIERS 400 WATT

HPA 3413U FOR KU-BAND WITH INTEGRATED BUC



HPA 3413 AU (indoor)

HPA 3413 BU (outdoor)

ND SatCom has been a supplier to the Satcom industry for over 25 years. All necessary features required in today's satellite communication applications are available in this HPA product line. The modular construction ensures easy servicing. The high voltage section is potted and all other electrical components are coated to protect against humidity and dust.

Now ND SatCom's 400 W Ku-Band HPAs are available with an optional L-Band input.

This allows direct connection of L-Band Modulators to the HPA input. Long, high price RF cables with superior performance are no longer needed. Especially SNG solutions will benefit from this embedded approach since the outer dimensions of the standard ND SatCom outdoor HPA remains compact as before.

**// Save money with our new TWT HPA  
with integrated L-Band and  
unmatched TWT durability //**

## Key features

- / Internal or external reference
- / Variable 20 dB attenuator
- / No external power supply for BUC needed
- / BUC with remote capabilities
- / Unmatched RF performance
- / Enhanced TWT longevity
- / High-tech power supply unit for highly reliable operation
- / Integrated power factor correction
- / Low power consumption (max. 1250 W)
- / Small dimensions (only 3 RU)

## Options

- / Integrated linearizer
- / Redundancy switching
- / Remote control panel

# TECHNICAL SPECIFICATION

## HPA 3413U FOR KU-BAND WITH INTEGRATED BUC

### RF-SPECIFICATION

HPA Type	<b>3413U</b>	
RF-Output Frequency	13.75 - 14.50 GHz	
IF-Input Frequency	950 - 1700 MHz	
Conversion Scheme	Single up-conversion, frequency inversion	
Flange Power	> 350 W, > 55.4 dBm	
TWT Power	400 W Tube	
Gain at Rated Power / 10 dB Backoff	> 65 dB / > 72 dB	
Gain Adjust	0 - 20 dB in 0.2 dB steps	
Gain Stability	< ±0.35 dB / 24 hr constant temperature	
Group Delay (in any 40 MHz)	Linear:	< 0.03 ns/MHz
	Parabolic:	< 0.01 ns/MHz <sup>2</sup>
	Ripple:	< 1 ns p-p
Intermodulation at 7 dB Backoff	-24 dBc max (with Linearizer: -23 dBc @ 4 dB Backoff)	
AM/PM Conversion	< 2.5° / dB at 7 dB below rated power	
Phase Noise	Meets IESS 308/309 with internal reference	
Noise and Spurious Emissions	< -65 dBW / 4 kHz (inband) < -120 dBW / 4 kHz (10.7 .. 12.7 GHz)	
Internal Reference Frequency	10 MHz	
Required External Reference Phase Noise Performance	10 Hz	-115 dBc/Hz
	100 Hz	-140 dBc/Hz
	1 kHz	-150 dBc/Hz
	10 kHz	-155 dBc/Hz
	100 kHz	-155 dBc/Hz

### MECHANICAL SPECIFICATION

	Version (A) indoor	Version (B) outdoor
RF Input Connector	N-Type (Jack)	
RF Output Connector	WR75 Waveguide	
Dimensions (L x W x H)	483 x 133 x 600 mm (3 RU)	457 x 136 x 611 mm
Weight	< 27 kg	
Cooling	Forced air min. 180 m³/h	

### ELECTRICAL SPECIFICATION

Serial Remote / Alarm Interface	RS485 / Alarm-Mute
Prime Power	100 to 240 VAC 50 - 60 Hz single phase
Power Consumption	< 1280 W max.
CE Directive	72/23/EEC and 92/31/EEC 89/336/EEC 1999/5/EC

### ENVIRONMENTAL SPECIFICATION

Operating Temperature Range	-10°C to +50°C	-40°C to +50°C
Humidity	95% non-condensing at 40°C	95% condensing at 40°C
Vibration and Shock	For normal commercial transport	



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