



## 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   | < ±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,<br>< 2.5 dB / in any 500 MHz,<br>< 5.5 dB / full band                     |   |
| VSWR   | < 1.4:1 Input<br>< 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><br>< -21 dBc at 6 dB below rated power                             | <b>With Linearizer 3413BUL</b><br>< -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,<br>< 6° / dB at rated output power                           |   |
| Noise Figure   | < 15 dB max   |   |
| Phase Noise  | Meets IESS 308/309  |   |
| Noise and Spurious Emmissions                              | < -60 dBW / 4 kHz (inband)<br>< -120 dBW / 4 kHz 10.7..12.7 GHz<br>< -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)                                     | 457 x 136 x 611 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   |   |

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