



INSTALLING
RELIABILITY



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HIGH POWER AMPLIFIER

400 W STANDARD KU-BAND INDOOR HPA 4413AU WITH BUILT-IN BUC

ND SATCOM has been a supplier to the SatCom industry for over three decades and has an excellent reputation for consistently developing high-end satellite communications products at competitive prices for customers in more than 130 countries worldwide. Our team of dedicated engineers works closely with customers around the world 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 global broadcasters and armed forces, we design both indoor and outdoor HPAs whose modular design is compact, reliable, service-friendly and powerful. Our products are designed to adapt to your operational needs, providing highly secure, customised solutions that have established us as a trusted and reliable partner in satellite communications.

OPTIONS

- Integrated Linearizer
- Waveguide Switching System
- Redundancy Control Unit (RCU) or M&C System

BENEFITS

- **User Interface**
Intuitive touch screen and WebUI with amplifier and system level control functions, exportable log and measurement data files
- **Unrivalled and improved RF performance**
- **High quality BUC from WORK Microwave**
- **Efficient and reliable**
Extremely efficient power supply saves power cost, increases MTBF and significantly reduces fan noise in your shelter racks
- **Safe and durable**
High voltage section is potted and all other electrical components are coated to protect against humidity and dust
- **Compact**
Light weight and small dimensions
- **Easy to maintain**
All RF parameters can be monitored and controlled directly or remotely
- **Made in Germany**
EUR1 certificate/no ITAR restrictions
- **Backwards compatible to HPA 3413AU/AUL**

TECHNICAL SPECIFICATIONS – HPA 4413AU

RF SPECIFICATIONS

| | | |
|--|--|---|
| Frequency Range | 13.75 – 14.50 GHz | |
| Flange Power | >350 W, >55.4 dBm | |
| IF Frequency | 950 – 1,700 MHz , LO 15.45 GHz, single up-conversion, inverting, internal reference | |
| 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 30 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, <3.0 dB/full band | |
| VSWR | <1.3:1 Input, <1.2:1 Output (waveguide) | |
| Group Delay (in any 40 MHz) | <0.01 ns/MHz linear, <0.005 ns/MHz ² parabolic, <0.5 ns ripple | |
| Intermodulation (two equal carriers at total output power) | Without Linearizer 4413AU | With Linearizer 4413AUL |
| | <-22 dBc at 6 dB below rated power <-24 dBc at 7 dB below rated power | <-30 dBc at 4 dB below rated power (meets ASTRA access agreement 6.4.2 for FSS Band with rated power -2 dB) |
| AM/PM Conversion | <2.5°/dB at 7 dB below rated power <6°/dB at rated output power | <2.5°/dB at 4 dB below rated power |
| Noise Figure | <15 dB | |
| Phase Noise | Meets IESS 308/309 | |
| Noise and Spurious Emissions | <-65 dBW/4 kHz (inband), <-120 dBW/4 kHz (10.7 – 12.7 GHz), <-115 dBW/4 kHz (18.0 – 19.0 GHz) | |
| Harmonic Output Suppression | <-80 dBc at rated output | |

PHYSICAL

| | |
|------------------------|---|
| Input RF Connector | SMA Input/N-Jack Testport |
| Output RF Connector | WR 75 Waveguide Output, grooved, UNC 6/32 |
| Dimensions (L x W x H) | 600 x 483 x 133 mm (3RU) |
| Weight | <26 kg/57 lbs |
| Cooling | Forced air min. 180 m ³ /h |



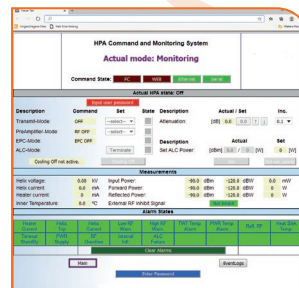
MONITOR & CONTROL

| | |
|-------------------------|---|
| Serial Remote Interface | 9-pin D female RS232/RS422/RS485 |
| Network Interface | RJ45, 10/100 Ethernet, IPv4 for WebUI and M&C |
| Alarm/Mute Interface | 15-pin D female |
| Automatic Level Control | Control range and activation of gain adjustment configurable via M&C/WebUI |



ELECTRICAL SPECIFICATIONS

| | |
|-------------------|--|
| AC Power | 100 to 260 V AC/47 - 63 Hz, single phase |
| Power Factor | >95 % |
| Power Consumption | <1,250 W |
| Inrush Current | <110 % |
| CE Directive | 73/23/EEC, 92/31/EEC, 89/336/EEC and 1999/5/EC |



ENVIRONMENTAL SPECIFICATIONS

| | |
|---------------------------------|----------------------------------|
| Temperature Range (operational) | -10 °C to +50 °C |
| Humidity | <95 %, non-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 8532 1826

MIDDLE EAST

ND SatCom FZE
PHONE: +971 4886 5012

WEST AFRICA

ND SatCom Senegal
PHONE: +221 77 569 8017