ND SATCOM
INSTALLING RELIABILITY

NEW USER INTERFACE

MADE IN GERMANY
CE
QUALITY GUARANTEED

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HIGH POWER AMPLIFIER

400 W Extended Ku-Band Outdoor HPA 4412BU 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
- Water cooling
- Extended temperature range
- Redundancy Control Unit (RCU) or M&C System

BENEFITS

- **User Interface**
  Intuitive 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**
  Extremly efficient power supply saves power cost, increases MTBF and significantly reduces noise with temperature controlled fans
- **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
  Perfectly fits for SKYRAY antenna
- **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 3412BU/BUL**

TECHNICAL SPECIFICATIONS – HPA 4412BU

RF SPECIFICATIONS

Frequency Range	12.75 – 14.50 GHz (extended Ku-Band)	
Flange Power	>350 W, >55.4 dBm	
IF Frequency	Ku1: 13.75 – 14.5 GHz, LO 15.45 GHz, RF in: 950 – 1,700 MHz Ku2: 12.75 – 13.25 GHz, LO 14.9 GHz, RF in: 1,650 – 2,150 MHz Ku1/Ku2 configurable, 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, <4.5 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/MHz² parabolic, <0.5 ns ripple	
Intermodulation (two equal carriers at total output power)	**Without Linearizer 4412BU** <-22 dBc at 6 dB below rated power <-24 dBc at 7 dB below rated power	**With Linearizer 4412BUL** <-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	<-60 dBW/4 kHz (inband), <-120 dBW/4 kHz (10.7 – 12.2 GHz), <-100 dBW/4 kHz (12.2 – 12.5 GHz), <-115 dBW/4 kHz (18.0 – 19.0 GHz)	
Harmonic Output Suppression	<-80 dBc at rated output	

PHYSICAL

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 m³/h, temperature controlled fans

RCU 6000

MONITOR & CONTROL

Serial Remote Interface	PT 851-00R12-10S50 RS232/RS422/RS485
Network Interface	RJ45, 10/100 Ethernet, IPv4
Alarm/Mute Interface	PT 851-00R12-10S50
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	2014/53/EU RED, 2014/30/EU EMC, 2011/65/EU RoHS, 2014/35/EU LV and 1907/2006/EC Reach

ENVIRONMENTAL SPECIFICATIONS

Temperature Range (operational)	-40 °C to +50 °C (+55 °C optional)
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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