

## MAIN FEATURES

- ❖ 1500 W output RF power
- ❖ Stable output power over temperature
- ❖ Low noise figure
- ❖ Ethernet or RS-485 M&C interface
- ❖ High reliability



## DESCRIPTION

This solid state power amplifier is intended for use in S-band satellite communications systems as uplink SSPA. It is to be installed directly to the antenna. The outdoor construction protects the amplifier against harsh environmental conditions. The SSPA can be fully remotely monitored and controlled via the built-in Ethernet interface. 1:1 hot redundant arrangement increases the reliability of the system.

## SPECIFICATIONS

ELECTRICAL PARAMETERS	
Frequency band	2025 – 2120 MHz
RF output power	62 dBm (1500W) @ P3dB 60 dBm (1000W) @ Plinear
Gain	70 dB min.
Gain slope	±0.3 dB / 10 MHz max.
Gain flatness	±0.5 dB
Gain stability @ constant temperature	0.5dB pk-pk / 24hours
Output power stability vs. temp (ALC ON)	±1 dB (-40°C to +60°C) max.
AM/PM conversion @ P3dB	<3 °/dB
ALC control range	20 dB min. with 0.1 dB step
In/Out impedance nominally	50 Ω
Input VSWR	<1.3 : 1
Output VSWR	<1.4 : 1
Output noise in 2.2 – 2.3 GHz & 7.9 – 8.5GHz band with filter	<-125 dBm/Hz (filter characteristics can be improved upon request)
Group delay variation (with filter)	Linear: 0.05 ns/MHz Parabolic: 0.001ns/MHz <sup>2</sup> Ripple: 1ns pk-pk
Gain adjustment range	20 dB
Gain adjustment step	0.1 dB typ.
Noise figure	<10 dB (@max. gain)
Harmonics @ Plinear	<-130 dBc (upto 4th harmonic)
Spurious @ Plinear	<-80 dBc
Output sample port	-63 dBc typ.
Intermodulation distortion @ Pout= 60 dBm (two tone, 57 dBm/tone, 5 MHz spacing)	<-25 dBc according to MIL-STD-188-164B
Spectral regrowth @Plinear	<-30dBc according to MIL-STD-188-164B
MTBF	>35 000 hours



## BPBS80

### 1.5 kW S-band 1:1 Redundant Outdoor Power Amplifier

Power supply voltage	400 VAC, 47 – 63 Hz three-phase
AC Power Consumption @ Pout= 62 dBm	<4000 VA
<b>MECHANICAL PARAMETERS</b>	
Connectors	AC 3-phase: D38999/20ZE6PN (6-pole) Ethernet: D38999/20ZC98SN (10-pole) RF IN: N-female Sample: N-female RF OUT: EIA 7/8
Weight	440 kg
Dimensions	1736 x 1050 x 1019 mm (see outline drawing)
<b>ENVIRONMENTAL PARAMETERS</b>	
Operating temperature range	-40°C ... +60°C
Degree of protection	IP67 Outdoor
Relative Humidity	100%
Cooling	Forced air cooling
Shock & Vibration	Transportation
<b>SOFTWARE PARAMETERS</b>	
Remote M&C interface	Ethernet (TCP/IP); Optional: RS-485
External RF mute on M&C interface	Optional

Specifications are subject to change without notice.

## SOFTWARE SCREENSHOT

The screenshot displays the software interface for the BPBS80 amplifier. At the top, there are navigation tabs for Factory Settings, User Settings, Remote Control, Connection Mode, IP: 192.168.16.94, Port: 40000, and System Status (Connected). Below these are tabs for Master, PAM A, and PAM B. The main interface is divided into several sections:

- Summary/Details:** Device Type: BPBS80, Serial Number: 001, Date of Manufact: 22.02.2024, Firmware Version: 2.5, Hardware Version: 1.0.
- Active PAM Settings:** ALC ON-OFF (ON), ALC Level (60.0 dBm), Attenuation (0.0 dB), RF by User (ON), External Mute (Inactive).
- PAM B and PAM A Status:** Both are Active, with Connection and Communication States indicated by green circles.
- Monitoring Graphs:** A central diagram shows the signal path from IN through a SPLITTER to PAM B and PAM A, then through a DUMMY load and another SPLITTER to OUT. Below this, two graphs show Output Power (60.1 dBm) and F. Stages Avg. (37.06 °C). Another set of graphs shows RF Input Power (-17.2 dBm) and Output Return (-19.10 dB).
- Master Monitor and Active PAM Monitors:** Lists various parameters like Master Temp., 26V Supply Voltage, 26V Supply Current, 5V Supply Voltage, 9V Supply Voltage, 28V Supply Voltage, Output Return Loss, 9V Current, Fan curr., Preamp Temp., RF Input Power, and Final Stages Alarms, each with a status indicator.



# BPBS80 1.5 kW S-band 1:1 Redundant Outdoor Power Amplifier

Factory Settings

Recall

Boot Mode

User Settings

Recall

Save

Remote Control

Restart Device

Settings

Connection Mode

TCP/IP

Serial

IP: 192.168.16.72

Port: 40000

Connect

System Status

Connected

Connections: 1

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Master PAM A PAM B
DOCUMENT

Final Stage 1. FET Summary
Final Stage 2. Details
Final Stage 2. FET Summary
Final Stage 3. Details
Final Stage 3. FET Summary

Summary
Preamp
Monitor
Units
Synthesizer
Final Stage 1. Details

Device Type: BPBS79

Serial Number: 005

Date of Manufacture: 22.02.2024

Firmware Version: 3.4

Hardware Version: 1.0

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ALC Enable = ON

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ALC Level = 60.0 dBm

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Attenuation = 0.0 dB

**AMPLIFIER**

RF OFF

RF Out: OFF

Output Power

< 5 dBm

F. Stages Avg. Temp

32.63 °C

RF Input Power

-12.9 dBm

Output Return Loss

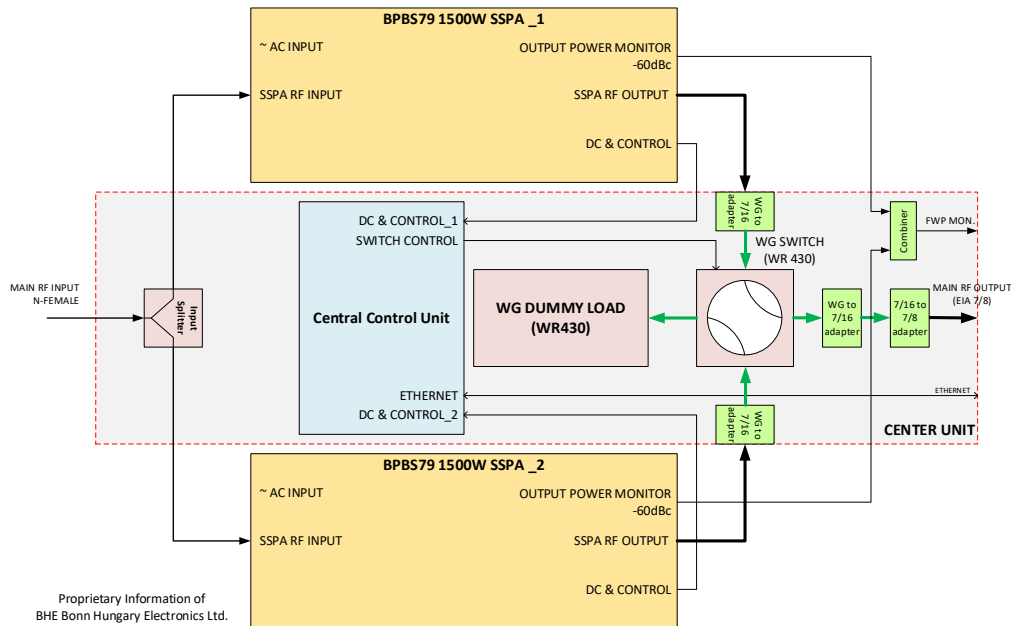
N.A. dB

Monitor	Current	History
9V Supply Voltage	●	●
28V Supply Voltage	●	●
Output Return Loss	●	●
9V Current	●	●
Fan curr.	●	●
Preamp Temp.	●	●
RF Input Power	●	●
Final Stages Alarms	●	●

Clear Alarm History CLEAR

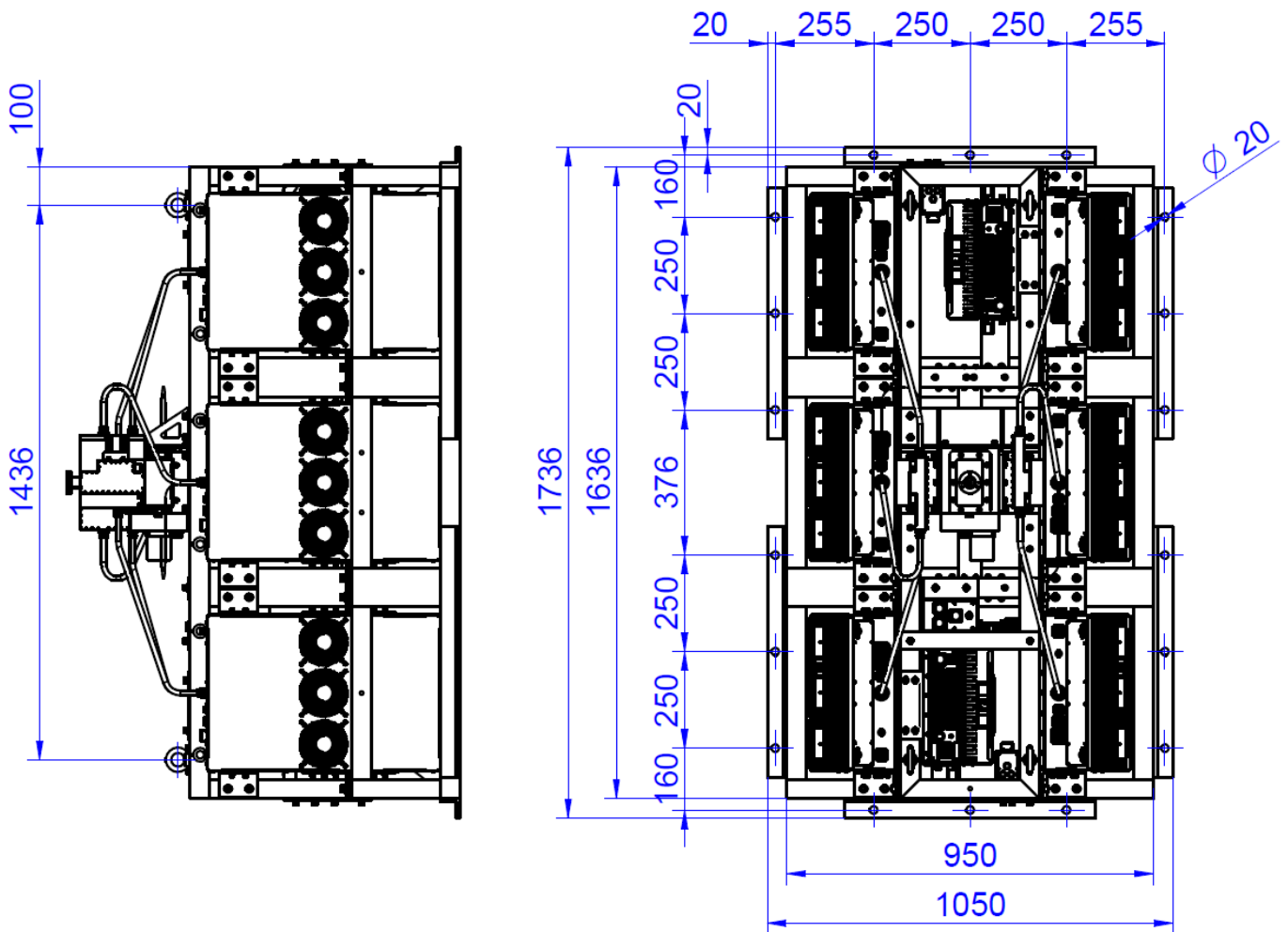
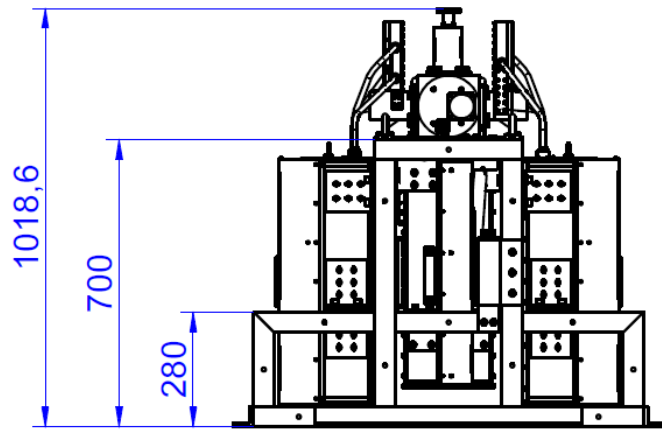
## SYSTEM SCHEMATIC

*BPBS80 1500W 1:1 redundant configuration (version 2)*



Proprietary Information of BHE Bonn Hungary Electronics Ltd.

### OUTLINE DRAWING





## BPBS80

### 1.5 kW S-band 1:1 Redundant Outdoor Power Amplifier

## ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
BPBS80K11379	BPBS80 1500 W, S-band, 1:1 redundant outdoor SSPA, External Mute, Ethernet control

## DOCUMENT REVISION

DOCUMENT NAME	REVISION	DATE
BPBS80-LM-K11379	V02	2024-06-05