

## X-Band 600W Outdoor SSPA System

### Product Features

- Solid-state design using GaN devices
- Provides 600 Watts of saturated power
- Highly linear
- Isolated output provides excellent VSWR protection
- Built-in self-protection circuits
- Forced air-cooled with integrated blowers
- Local/remote monitoring and control via Ethernet and RS485 interfaces
- Rugged, weatherproof outdoor package



### Optional Features

- L-Band input (BUC operation)
- Redundancy ready (no external controller required)
- Harmonic filter (external)
- Calibrated forward and reflected sample ports

### Product Description

UBS' X-band solid-state power amplifier (SSPA) is built using the latest GaN transistor technology. The highly linear design is the ideal replacement for TWTAs used in SATCOM applications. It offers 600 Watts of saturated power across a 7.9 to 8.4 GHz frequency band. The rugged, weatherproof outdoor design is a field-replaceable system component, built to offer maximum reliability and long service life.

The SSPA features monitoring and self-protection circuits including input overdrive, forward power, over-temperature, operating current and operating voltage. Additionally, every GaN transistor is fully protected against potentially harmful reflected power caused by antenna mismatches. The SSPA is force air cooled using integrated blowers and includes an AC/DC power supply system.

The system controller provides a user-friendly interface for monitoring and control of the SSPA. RS485 and Ethernet interfaces provide the user with local/remote monitoring and control via PC GUI, Web GUI and SNMP. The optional, indoor control cabinet, with system controller, dehydrator and/or PDU, provides a convenient means to power and control the SSPA system. The indoor system controller communicates with the SSPA system controller to provide a front panel display for local monitoring and control.

## Product Specifications

Electrical	
Operating Frequency	7900 - 8400 MHz
Saturated RF Output Power (Psat)	600W (57.7 dBm)
Small Signal Gain	70 dB
Small Signal Gain Flatness	±1.5 dB
Small Signal Gain Slope	±0.35 dB across any 40 MHz band
Gain Stability	±0.25 dB / 24 hour max. @ constant drive and temperature
Gain Variation vs. Temperature	±1 dB over operating temperature range
Gain Adjustment	0 to 20 dB, step size 0.5 dB
AM/PM Conversion	1.0 deg/dB max. @Plinear 2.5 deg/dB max. @Psat
Third Order Intermodulation (3dB backoff, 1MHz spacing)	-25 dBc
Spurious	-60 dBc max.
Harmonics	-55 dBc max.
Noise Power Density	-70 dBw / 4 kHz in transmit band
Phase Noise	10 dB below IESS-308/309 (without BUC)
Residual AM	-45 dBc below 10 kHz -65 dBc from 10 kHz to 500 kHz -80 dBc above 500 kHz
Group Delay	0.01ns/MHz Linear 0.003ns /MHz Parabolic 1.0ns/p-p Ripple
Input VSWR	1.5:1 max.
Output VSWR	1.5:1 max.

Interfaces	
RF Input	N-type (female) 50Ω
RF Output	WR-112 CPRG
RF Sample Ports	N-type (female) 50Ω
AC Input	3-pin plug MS3102E20-19P screw down terminal block with optional PDU
Auxiliary DC Output (optional)	6-pin socket MS3102E14S-6S
Monitoring and Control	
Ethernet Interface Protocol	RJ45 outdoor connector PC GUI, Web GUI and SNMP
RS485 Interface Protocol	7-pin MS3102E16S-1S; DB-9 (female) with optional system controller PC GUI
Front Panel LCD	2 line by 40 character display with optional system controller

## Product Specifications

Power Supply	
Voltage	Single Phase, 100 to 240 VAC, $\pm 10\%$
Frequency	50 to 60 Hz, $\pm 10\%$
Power Consumption	2.5 kW max. @ Psat
Power Factor	0.98

Environmental	
Ambient Operating Temperature	-40°C to +50°C
Ambient Storage Temperature	-50°C to +85°C
Relative Humidity	100% condensing
Altitude	3000 m (10000 ft.)
Cooling	Forced air with integrated blowers