ESSPX-KU400

SSPA/SSPB Ku-Band 400W GaN

The ESSPx is the outdoor solid-state power amplifiers (SSPAs) series designed and manufactured by Elber with GaN transistor technology, with output power from 50W up to 400W. Available also as SSPB, with in-house designed upconverter, the ESSPA-Ku400 is the 400W Ku-band version.

The ESSPx is an integrated unit, comprehensive of power supply and cooling system, housed in a weatherproof cabinet for safe outdoor installation and operation. Safe operation is preserved also through automatic software/hardware shutdown of final stages in case of overtemperature, over-current and high reflected power.

The amplifier is equipped with precise forward and reflected power detection circuitry for correct configuration and monitoring of the amplifier. Combination of basic pallets is just mechanical through waveguide combiners, so that performances can be easily replicated for massive production. Management of the unit can be done either locally and remotely through serial Ethernet connection.

A redundancy kit is also available, with autonomous management of 1:1 solution or optionally with external Master control unit, through Cleber platform (one control unit for 2 amplifiers).

MAIN FEATURES

- SSPA and SSPB
- GaN Technology
- Output power 400 W (P_{SAT})
- High Gain and Linearity
- Fully Outdoor Use / Rackmount kit
- Fully protected against over-temperature, overcurrent and high VSWR
- Gain adjustment
- Output sample monitor port
- Autonomous 1+1 redundancy management
- Remote Monitor & Control through Serial and Ethernet ports

ELBER Srl. Via Pontevecchio, 42W - 16042 Carasco (GE) Italy
Phone +39 0185 351333 - Fax +39 0185 351300 - www.elber.it - info@elber.it

SPECIFICATIONS

GENERAL

Frequency:	14.0-14.5 GHz (standard) 13.75-14.5 GHz (extended)
Output Power:	+56.0 dBm P_{SAT} +53.0 dBm P_{LIN}
Gain @ 0 dB attenuation:	78 dB ± 2 dB
Gain regulation:	25 dB in 0.1 dB steps
Spectral regrowth:	<-30 dBc @1.0 x SR
Third order IMD:	-25 dBc (2 tones 5 MHz separation @ P_{LIN})
Gain flatness:	± 0.3 dB over any 40 MHz band ± 1.5dB full band
Gain variation over temp:	± 0.3 dB
Power Meter accuracy:	± 1 dB max
NPD in Tx Band:	-80 dBm/Hz
NPD in Rx Band:	-160 dBm/Hz
Spurious level @ P_{LIN}:	<-55 dBc
AM/PM conversion:	2.0°/dB max at P_{LIN}
Group Delay Ripple:	<1ns p-p (in any 36MHz band)
Input:	
Connector:	N (f)
Impedance:	50 ohms
VSWR :	1.3:1
Output:	
Flange:	WR75
VSWR:	1.23:1 with output isolator
Output Sample:	
Connector:	N (f)
Impedance:	50 ohms
VSWR:	1.3:1

BUC (OPTIONAL)

L-Band frequency:	950-1450 MHz (standard) 950-1700 MHz (extended)
Local Oscillator:	13.050 GHz (standard) 12.800 GHz (extended)
Input:	
Connector:	N (f)
Impedance:	50 ohms
VSWR:	1.4:1
Level (typ.):	-25 ÷ +5 dBm
Cable AGC range:	0 ÷ -25 dBm
Reference frequency:	10 MHz (internal or external)
Reference input:	Multiplexed on N-type IF IN
Reference level:	-15 ÷ +5 dBm
Oscillator:	
Frequency:	10 MHz
Aging/day:	± 2 x 10^{-10}
Aging/year:	± 5 x 10^{-8}
Stability:	± 2 x 10^{-8}
Phase Noise:	- 53 dBc/Hz @ 10 Hz - 70 dBc/Hz @ 100 Hz - 90 dBc/Hz @ 1 kHz - 98 dBc/Hz @ 10 kHz -100 dBc/Hz @ 100 kHz -120 dBc/Hz @ 1 MHz

CONTROL

Stand-alone:
- Ethernet
  - LAN 1 custom cable required
  - LAN 2 RJ-45 10/100 Mbps
- RS232/RS485

With M&C unit CLEBER:
- Ethernet RJ45 10/100BaseT
- Connector: Amphenol - PT07Y12-14P

REDUNDANCY (OPTIONAL)

Configuration: 1:1, 2:1, 3:1

Control:
- Autonomous via dedicated line
- Remotely controlled by M&C unit CLEBER

Waveguide switch:

Frequency Range:	10.0 - 15.0 GHz
Flange:	WR75
VSWR (MAX):	1.08 : 1 (1.05:1 TYP)
Insertion Loss (Max):	0.05 dB
Isolation (Min.):	60 dB
Switching Time:	50ms typical

Load:

Typical Load:	500 W
Flange:	WR75

ELECTRICAL

Supply:	90-265 V~ 47-63 Hz
Connector:	HIRSCHMANN 932322100
Consumption:	1600 W @ P_{LIN} 2400 W @ P_{SAT}

Field Replaceable / Relay Field Replaceable

MECHANICAL

Dimensions:

Width:	262 mm
Height:	257 mm
Depth:	545 mm
Weight:	28 Kg

ENVIRONMENTAL

Operative temperature:	-30÷ 55°C
Storage temperature:	-40÷ 85°C
Humidity:	100% condensing

CE Marking

Elber reserves the right to make changes to specifications of products described in this datasheet at any time without notice and without obligation to notify any person of such changes. Such modifications may include improvements in performance, design adjustments, or compliance with updated industry standards to better serve customer requirements and expectations.

ELBER Srl. Via Pontevecchio, 42W - 16042 Carasco (GE) Italy
Phone +39 0185 351333 - Fax +39 0185 351300 - www.elber.it - info@elber.it