

DESCRIPTION

AMCOM Communications' AB-Series is a family of outdoor Block Up Converters (BUC) covering the C, X, Ku and Ka satellite uplink bands, with GaN output-power options of 20, 40, 60, 80 and 100 Watts P1dB available in every band and every standard frequency plan. Each unit combines a phase-locked, single-conversion L-band block up-converter module with a high-efficiency Gallium-Nitride (GaN) solid-state power amplifier in a weatherproof IP67 enclosure with integrated forced-air cooling. The up-converter locks to an external 5, 10 or 50 MHz reference injected on the L-band IF input (diplexed), with automatic switch-over to the low-phase-noise internal reference and provides gain adjustment at L-band in 0.1 dB steps. Prime power is 95 – 265 VAC with active power-factor correction, with a DC input available as an option. Monitor & control is provided over a single rugged Ethernet interface (SNMP and embedded Web GUI), making the AB-Series ideal for VSAT, SNG / DSNG, flyaway, transportable and fixed earth-station applications.



Pictures for reference only — final product may differ

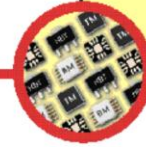
FEATURES

- GaN SSPA output-power tiers of 20, 40, 60, 80 and 100 W (+43 to +50 dBm) P1dB — every tier available in every band
- One product family, 26 standard frequency plans across the C, X, Ku and Ka satellite uplink bands
- Phase-locked single-conversion up-converter; low phase noise — Intelsat / Eutelsat compliant (C, Ku), MIL-STD-188-164 (X, Ka)
- Locks to external 5, 10 or 50 MHz reference via the L-band IF input (diplexed); auto switch-over to internal reference (± 5 ppm; ± 1 ppm high-stability option)
- 25 dB gain adjustment at L-band in 0.1 dB steps (Ka: 30 dB, 0.25 dB steps)
- Rugged outdoor design — IP67 aluminium enclosure with integrated forced-air cooling
- Remote monitor & control over 10/100 Ethernet only — SNMP and embedded Web GUI
- 95 – 265 VAC prime power with active PFC (DC input option); MIL-STD-810 / 461 environmental design

APPLICATIONS

- Satellite uplink: VSAT data networks — enterprise, government and maritime
- SNG / DSNG mobile uplinks and broadcast contribution links
- Government, military and defense SATCOM; Comms-on-the-Move (COTM)
- Fixed earth stations, feeder uplinks and flyaway terminals
- Cellular backhaul over satellite; rapid-deploy and disaster-recovery terminals
- Test & Measurement and earth-station uplink chains





STANDARD FREQUENCY PLANS (26 plans — every plan available at all output-power tiers)

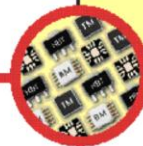
Band	Plan Code	Uplink / Tx Output	L-Band IF Input	LO Frequency	RF Output Interface
C	440500	4.400 – 5.000 GHz	950 – 1550 MHz	3.45 GHz	CPR187G / Type-N (f)
	585645	5.850 – 6.450 GHz	950 – 1550 MHz	4.90 GHz	CPR137G / Type-N (f)
	585675	5.850 – 6.750 GHz	950 – 1850 MHz	4.90 GHz	CPR137G / Type-N (f)
	585705	5.850 – 7.050 GHz	950 – 2150 MHz	4.90 GHz	CPR137G / Type-N (f)
	625675	6.250 – 6.750 GHz	950 – 1450 MHz	5.30 GHz	CPR137G / Type-N (f)
	645715	6.450 – 7.150 GHz	950 – 1650 MHz	5.50 GHz	CPR137G / Type-N (f)
	715775	7.150 – 7.750 GHz	950 – 1550 MHz	6.20 GHz	CPR137G / Type-N (f)
X	790840	7.900 – 8.400 GHz	950 – 1450 MHz	6.95 GHz	WR112 / CPR112G
Ku	127145	12.75 – 14.50 GHz	950 – 2700 MHz	11.80 GHz	WR75 / CPR75G
	137145	13.75 – 14.50 GHz	950 – 1700 MHz	12.80 GHz	WR75 / CPR75G
	140145	14.00 – 14.50 GHz	950 – 1450 MHz	13.05 GHz	WR75 / CPR75G
	144153	14.40 – 15.30 GHz	950 – 1850 MHz	13.45 GHz	WR75 / CPR75G
Ka	247252	24.75 – 25.25 GHz	950 – 1450 MHz	23.80 GHz	WR34 / UG-1530
	275285	27.50 – 28.50 GHz	950 – 1950 MHz	26.60 GHz	WR28 / UG-599
	276291	27.60 – 29.10 GHz	950 – 2450 MHz	26.60 GHz	WR28 / UG-599
	283300	28.35 – 30.00 GHz	950 – 2600 MHz	27.40 GHz	WR28 / UG-599
	285295	28.50 – 29.50 GHz	1000 – 2000 MHz	27.50 GHz	WR28 / UG-599
	288296	28.875 – 29.625 GHz	975 – 1725 MHz	27.90 GHz	WR28 / UG-599
	290295	29.00 – 29.50 GHz	1000 – 1500 MHz	28.00 GHz	WR28 / UG-599
	290300	29.00 – 30.00 GHz	1000 – 2000 MHz	28.00 GHz	WR28 / UG-599
	291293	29.10 – 29.30 GHz	1300 – 1500 MHz	27.80 GHz	WR28 / UG-599
	292300	29.20 – 30.00 GHz	1000 – 1800 MHz	28.20 GHz	WR28 / UG-599
	295300	29.50 – 30.00 GHz	1100 – 1600 MHz	28.40 GHz	WR28 / UG-599
	295305	29.50 – 30.50 GHz	1000 – 2000 MHz	28.50 GHz	WR28 / UG-599
	300308	30.00 – 30.80 GHz	1000 – 1800 MHz	29.00 GHz	WR28 / UG-599
	300310	30.00 – 31.00 GHz	1000 – 2000 MHz	29.00 GHz	WR28 / UG-599

Plan code = Tx band start / stop, 3 digits each (e.g. 137145 = 13.75–14.50 GHz). All plans are single conversion with no spectral inversion and are offered at every output-power tier. Custom bands, sub-bands and specifications available — contact AMCOM.



**Outdoor GaN Block Up
Converters, 20 W to 100 W
C · X · Ku · Ka-Band
20 / 40 / 60 / 80 / 100 W P1dB**

AB-Series
August 2026
Rev0



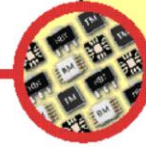
OUTPUT POWER OPTIONS (all bands and frequency plans; 20 W to 100 W P1dB)

Output Power Tier	P1dB (min.)	Psat (typ.)	Small-Signal Gain (min. / typ.)	IF Drive for Rated P1dB	Power Consumption (typ. / max.)
20 W	+43 dBm	+45 dBm	65 / 68 dB	–22 dBm	150 / 200 W
40 W	+46 dBm	+48 dBm	68 / 71 dB	–22 dBm	280 / 350 W
60 W	+47.8 dBm	+49.5 dBm	70 / 73 dB	–22 dBm	400 / 500 W
80 W	+49 dBm	+51 dBm	71 / 74 dB	–22 dBm	520 / 650 W
100 W	+50 dBm	+52 dBm	72 / 75 dB	–22 dBm	650 / 800 W

P1dB and Psat are minimum / typical at the RF output flange over the full Tx band. Power consumption is at rated P1dB output, fans included (preliminary — to be confirmed by measurement). Small-signal gain includes the up-converter (20 dB; Ka 25 dB) and the GaN SSPA; IF drive is the nominal input for rated P1dB at maximum gain.

ELECTRICAL SPECIFICATIONS (all bands and power tiers, at rated conditions unless noted)

Small-Signal Gain	65 dB min. (20 W) to 72 dB min. (100 W) — per tier, see Output Power Options
Gain Adjustment (at L-band)	25 dB range in 0.1 dB steps (Ka: 30 dB range, 0.25 dB steps); local & remote
Gain Flatness (over RF band)	± 1.0 dB max. (Ka: ± 0.75 dB / 1 GHz)
Gain Flatness (any 40 MHz)	± 0.25 dB max. (Ka: ± 0.50 dB / any 125 MHz)
Gain Stability vs. Time	± 0.25 dB / day max. at constant temperature (Ka: ± 0.50 dB / day)
Gain Stability vs. Temperature	± 1.5 dB max. over operating temperature range
IF Input Connector / Impedance	SMA female, 50 Ω (Type-N female option)
IF Input Return Loss	18 dB min. (15 dB min. Ka)
IF Input Drive Level	–22 dBm nominal for rated P1dB (all tiers); max. input +10 dBm (no damage)
RF Output Interface	Waveguide flange per band (see table above); 50 Ω
RF Output Return Loss	18 dB min.
Transfer Type	Single conversion, no spectral inversion
Carrier / 3rd-Order IMD (2 carriers, 6 dB OBO)	≤ –25 dBc
In-Band Spurious (signal independent)	≤ –60 dBc
In-Band Spurious (signal dependent)	≤ –60 dBc at rated output
LO Leakage (referred to rated output)	≤ –60 dBc
Image Rejection	≥ 60 dBc (70 dBc typical)
Harmonics (2nd / 3rd)	≤ –30 dBc ≤ –60 dBc with output harmonic filter option
AM / PM Conversion (at rated Po)	≤ 3 ° / dB
Noise Figure (at max gain)	16 dB max.
Group Delay (over RF band)	2.0 ns p-p max.



SSB PHASE NOISE (dBc/Hz max., internal reference)

Offset from Carrier	C-Band	X-Band	Ku-Band	Ka-Band
10 Hz	–45	–45	–40	–35
100 Hz	–75	–72	–70	–68
1 kHz	–90	–95	–85	–90
10 kHz	–100	–100	–95	–95
100 kHz	–105	–105	–100	–100
1 MHz	–120	–120	–120	–115

Phase noise is Intelsat / Eutelsat compliant (C, Ku) and MIL-STD-188-164 compliant (X, Ka). With an external reference, phase noise follows the reference: REF + 20·log(N) + 3 dB.

FREQUENCY & REFERENCE

External Reference Input	5, 10 or 50 MHz, –10 dBm ± 10 dB, injected via the L-band IF input (diplexed)
Reference Switch-Over	Automatic switch-over from external to internal reference
External Frequency Stability	Same as the reference source
Internal Reference Stability	± 5 ppm max. over temperature (± 1.0 ppm max. high-stability option)
Local Oscillator	Phase-locked, fixed per frequency plan (see table); phase-lock alarm

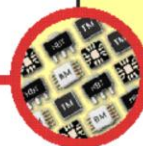
MONITOR & CONTROL

Control Interface	10/100 Base-T Ethernet (only) — ruggedized RJ45 (etherCON-type)
Protocols	SNMP v2c / v3, embedded Web GUI
Alarm Reporting	SNMP traps over Ethernet; phase-lock and summary fault status
Monitored Parameters	RF output power, temperature, phase-lock (LO), reference source (int/ext), DC voltage & current
Control Functions	Tx on / off / mute, gain attenuation (0.1 dB steps), alarm thresholds



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PRIME POWER

Input Voltage	95 – 265 VAC (47 – 63 Hz), active power-factor correction (PF ≥ 0.95) option: +36 VDC (32 – 42 VDC)
Power Connector	AC: sealed circular MIL-type DC option: 4-pin circular MIL-type (Pin A: +VDC, Pin B: GND, Pins C, D: NC)
Protection	Reverse-polarity, over-voltage and surge protected; in-rush limited
Power Consumption	Per output-power tier — see Output Power Options table (150 W typ. at 20 W to 650 W typ. at 100 W, fans included)

ENVIRONMENTAL & MECHANICAL

Operating Temperature	–30 °C to +60 °C ambient
Storage Temperature	–40 °C to +85 °C
Humidity	Up to 100 %, condensing (sealed enclosure)
Enclosure / Ingress	Aluminium enclosure, IP67 rated; breather / pressure-relief vent
Cooling	Integrated forced-air (dual long-life fans over finned heatsink)
Altitude	Up to 4,500 m (operating)
Finish / Corrosion	Powder-coat white; salt-fog per MIL-STD-810
EMI / EMC	MIL-STD-461 design

SIZE & WEIGHT by output-power tier (preliminary)

Configuration	Typical L × W × H	Weight	Mounting
20 W outdoor unit (all bands)	310 × 250 × 170 mm (12.2 × 9.8 × 6.7 in)	6.5 kg (14.3 lb)	4× slotted feet
40 W outdoor unit (all bands)	340 × 270 × 180 mm (13.4 × 10.6 × 7.1 in)	8.5 kg (18.7 lb)	4× slotted feet
60 W outdoor unit (all bands)	380 × 290 × 200 mm (15.0 × 11.4 × 7.9 in)	11.0 kg (24.3 lb)	4× slotted feet
80 W outdoor unit (all bands)	420 × 310 × 210 mm (16.5 × 12.2 × 8.3 in)	13.5 kg (29.8 lb)	4× slotted feet
100 W outdoor unit (all bands)	450 × 330 × 220 mm (17.7 × 13.0 × 8.7 in)	16.0 kg (35.3 lb)	4× slotted feet

ORDERING INFORMATION

AB - [BAND] - [PWR] - [PLAN] - [REF] - [OPTIONS]

Examples: **AB-KU-40-137145-I** = Ku-band, 40 W P1dB, 13.75–14.50 GHz plan, standard internal reference. **AB-C-100-585675-H-D** = C-band, 100 W P1dB, 5.85–6.75 GHz plan, high-stability reference, DC prime-power option.

Field	Options
BAND	C X KU KA
PWR	Rated output power P1dB in watts: 20 40 60 80 100 (all tiers available in every band)
PLAN	Frequency plan code from the Standard Frequency Plans table — Tx band start / stop, 3 digits each (e.g. 585675 = 5.85–6.75 GHz, 790840 = 7.90–8.40 GHz, 137145 = 13.75–14.50 GHz, 290300 = 29.00–30.00 GHz)
REF	I = internal ±5 ppm (standard) H = internal ±1 ppm (high stability) E = external only
OPTIONS	D = DC prime-power input (+36 VDC) F = output harmonic filter M = RF monitor port S = secured SNMPv3

Specifications are preliminary and subject to change without notice. All values are typical at +25 °C unless otherwise stated and represent the AB-Series product family; exact performance is defined per model and configuration on the applicable acceptance test plan. © 2026 AMCOM Communications, Inc. All rights reserved.