

Block Up Converter

High power C-Band and Ku-Band

Codan's High power Block Up Converter (BUC) systems offer a wide range of distinctive advantages and enhanced features for satellite communications systems based in remote or challenging geographic regions.

Available in the standard C-Band and Ku-Band operating frequencies—and a range of output powers—the BUCs provide industry leading technical performance.

KEY FEATURES

Configuration

The High power BUC systems are based on Codan's Low power Block Up Converter (LBUC) driving a Codan high power solid state power amplifier (SSPA). The SSPA is available with 120 watts (C-Band) or 40 watts (Ku-Band) of RF output power.

Durability

The High power BUC systems are designed and tested to meet their performance specifications over an ambient temperature range of -40°C to $+55^{\circ}\text{C}$ and up to 100% relative humidity, ensuring long-term survival in extreme conditions. Field experience for Codan BUCs shows that MTBFs of greater than 100,000 hours can be expected.

RF performance

RF performance is superior, particularly: intermodulation performance, gain stability over temperature and flatness across the IF band. The BUC systems also boast industry leading spurious and harmonics specifications. Guaranteed RF performance ensures expensive system link margins do not have to be used to cope with RF transceiver variations.

Power

Codan's High power BUC systems all feature low power consumption and low temperature rise, ensuring internal components do not suffer undue stress.

The LBUC modules are powered via the transmit IF cable, and the SSPAs are AC mains powered.

Internal protection

Internal protection against high temperature and short or open circuit RF output is standard.

External protection

The BUCs and SSPAs are completely protected from the elements without external user controls. All modules are fully sealed and pressure tested to 34 kPa (5 psi).

CODAN QUALITY AND SERVICE

The LBUC and SSPA modules are built and tested in Codan's ISO9001 quality certified manufacturing facility, and undergo 100% burn in and performance monitoring over the temperature range specified.

Codan's fully trained staff and agents provide in-factory and in-country training services and complete installation and on-site assistance. This service is backed up by a 24 hour customer service line and a warranty of three years on manufacturing, design or component defects.



C-Band High power Block Up Converter system

ADVANCED FEATURES

Enhanced monitor and control

All operating functions can be controlled and monitored via the serial Monitor & Control (M&C) facilities.

The operating configuration is stored in EEPROM to ensure the set-up parameters are restored in the event of a power failure.

The LBUCs have universal interface compatibility and are capable of operating with dumb terminals and laptops/PCs emulating terminals.

Codan provides the optional Hand-held Controller 6560 for easy set up of the LBUCs.

The user has the choice of an FSK based M&C interface, which is fed via the transmit IF cable for use with intelligent modems or separate RS232 or RS422/RS485 interfaces.

Multiple M&C protocols are provided to enable integration into a number of network management systems.

The user-friendly, PC-based SSPA Manager is provided for operator control and monitoring of the SSPA.

MAJOR CONFIGURATION OPTIONS

Transmit frequency band

C-Band

5.850–6.425 GHz

Ku-Band

Band 1
Band 2

14.0–14.5 GHz
13.75–14.5 GHz

RF output power

C-Band

Driver
6705 LBUC 5 W
High Power Amplifier
5712H SSPA 120 W

CPR137G waveguide output standard

CE Certification

Ku-Band

Driver
6904 LBUC 4 W
High Power Amplifier
5940 SSPA 40 W

PBR120 (WR75) waveguide output standard

Options and accessories

Hand-held Controller
Remote Controller
IF Interface Unit
Low Noise Block converters (LNBS)
Transmit Reject Filters (TRFs)
Antenna mounting kits
Redundancy systems



L-Band IF Interface Unit



6560 Hand-held Controller

Equipment descriptions and specifications are subject to change without notice or obligation

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Block Up Converter

High power C-Band and Ku-Band SPECIFICATIONS

BLOCK UP CONVERTER AND SSPA

IF input	
Frequency range	
C-Band	950 to 1525 MHz
Ku-Band	950 to 1450 MHz 950 to 1700 MHz
Impedance	50 Ω
Connector	N female
VSWR	1.5:1 maximum
Gain specification	
Gain @ 12 dB LBUC attenuator setting and 10 dB SSPA attenuator setting	
C-Band 120 W	75 dB nominal
Ku-Band 40 W	75 dB nominal
Gain flatness	±0.8 dB typical, 40 MHz ±1.8 dB typical, full band
Gain stability	±2.0 dB over -40 to +55°C typical
RF output (C-Band)	
Frequency range	5.850 to 6.425 GHz
Output power @ 1 dB GCP	
120 W	+50.8 dBm (120 W) typical +50.0 dBm (100 W) minimum
Carrier to intermodulation ratio	-26 dBc, two carriers, each @ 6 dB OPBO from 1 dB GCP
Connector	CPR137G
VSWR	1.25:1 maximum
RF output (Ku-Band)	
Frequency range	
Band 1	14.0 to 14.5 GHz
Band 2	13.75 to 14.5 GHz
Output power @ 1 dB GCP	
40 W	+46.7 dBm (47 W) typical +46.0 dBm (40 W) minimum
Carrier to intermodulation ratio	-25 dBc, two carriers, each @ 6 dB OPBO from 1 dB GCP
Connector	PBR120 flange (WR75)
VSWR	1.3:1 maximum
Phase noise (SSB)	
100 Hz	-63 dBc/Hz maximum
1 kHz	-73 dBc/Hz maximum
10 kHz	-83 dBc/Hz maximum
100 kHz	-93 dBc/Hz maximum
Frequency reference	
Frequency	10 MHz
Level	-10 to +5 dBm

Phase noise (SSB)	
100 Hz	-135 dBc/Hz maximum
1 kHz	-145 dBc/Hz maximum
10 kHz	-155 dBc/Hz maximum
100 kHz	-155 dBc/Hz maximum
Input connector	Multiplexed on the transmit IF
Frequency conversion	
LO frequency	
C-Band	7300, 7375 MHz user selectable
Ku-Band	15450 MHz
Sense	Spectrum inverting
Power supply	
LBUC	19 to 35 V DC or 42 to 60 V DC via transmit IF connector
SSPA	104 to 274 V AC, 47 to 63 Hz
Monitor and control	
LBUC	FSK, RS232, RS485 and contact closure
SSPA	RS232, RS485 and contact closure
Power consumption	
LBUC	
C-Band	60 W maximum
Ku-Band	80 W maximum
SSPA	
C-Band 120 W	740 VA typical
Ku-Band 40 W	450 VA typical

ENVIRONMENTAL

Operating temperature range	-40°C to 55°C
Relative humidity	100%
Cooling	
LBUC	Convection
SSPA	Forced air
Weatherproofing	
LBUC	Sealed to 34 kPa
SSPA	IP66

PHYSICAL

Size	
LBUC	
6705	335 mm L x 182 mm W x 104 mm H
6904	360 mm L x 182 mm W x 104 mm H
SSPA	280 mm L x 355 mm W x 495 mm H
Weight	
LBUC	5.6 kg
SSPA	27 kg
Mounting	
LBUC and SSPA	Combined pole mounting kit

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