

VSAT BUC CODAN 6700 & 6900 Low Band Block-Up Converters

 [VSAT BUC Codan 6700/6900 User Guide \(1 MB\)](#)

VSAT L-Band IF input CODAN 6700 series VSAT C-Band and CODAN 6900 series Ku-Band VSAT transceivers offer a wide range of distinctive advantages and enhanced features for satellite communications systems based in remote or challenging geographic regions.

Available in all common VSAT C-Band and VSAT Ku-Band operating frequencies-and a range of output powers - the CODAN 6700 and CODAN 6900 series provide industry leading technical performance.

Key features

Configuration

The CODAN 6700 and CODAN 6900 series VSAT BUC are based on a compact L-Band IF input Block Up Converter (BUC). This module is available in VSAT C-Band and VSAT Ku-Band versions and a range of RF output powers. Receive capability is provided by a range of LNBS to cover the various VSAT C-Band and VSAT Ku-Band receive frequency ranges.

Durability The CODAN 6700 and CODAN 6900 series VSAT transceivers are designed and tested to meet all their performance specifications over an ambient temperature range of -40°C to +55°C and up to 100% relative humidity, ensuring long-term survival in extreme conditions. Field experience for CODAN VSAT transceivers 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 CODAN 6700 and 6900 series VSAT transceivers also boast industry leading spurious and harmonics specifications compliant with CE requirements. Guaranteed RF performance ensures expensive system link margins do not have to be used to cope with RF transceiver variations.

Power

CODAN L-Band IF VSAT transceivers all feature low power consumption and low temperature rise, ensuring internal components do not suffer undue stress.

The CODAN 6700 and CODAN 6900 series Low power VSAT (LBUC) modules are powered via the transmit IF cable. The Medium power VSAT (MBUC) modules are AC mains powered.

Internal protection

Internal protection against high temperature and short or open circuit RF output is standard. As well, input voltage detection ensures reliable shutdown and restart under brownout or blackout conditions.

External protection

The VSAT transceiver is completely protected from the elements without external user controls. The VSAT BUC modules are fully sealed and pressure tested to 34 kPa (5 psi). Particle and moisture penetration is rated to IP68. High quality powder coat paint is used to protect the modules from corrosion.

Advanced features

Enhanced monitor and control

All operating functions can be controlled and monitored via the serial M&C facilities. The standard output power meter facility features high accuracy and the ability to measure



both CW and burst mode signals.

The CODAN 6700 and CODAN 6900 series VSAT transceivers is capable of operating with a PC without requiring proprietary software.

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.



IF Interface unit

In cases where the modem is not able to drive the transceiver directly, an optional indoor unit is available. This unit connects to the modem at the L-Band transmit and receive IF interfaces, and multiplexes the required power and reference signals on the IF cables. In addition, it also converts the M&C FSK to separate RS232 and RS422/RS485 interfaces.



Major configuration options

Refer to individual specification sheets for allowed combinations of configuration options.

Receive frequency bands (GHz)

Receive bands are selected by the use of an appropriate LNB. Standard frequency bands are listed below. Noise temperatures of 40 K (C-Band) and 75 K (Ku-Band) are available.

Transmit frequency band (GHz)

VSAT C-Band	VSAT Ku-Band
5.850 - 6.725 и 5.850-6.425	14.0-14.5; 13.75-14.5 и 13.75-14.25

Block Up Converter BUC RF output power

VSAT C-Band	VSAT Ku-Band
6705 - 5W	6904 - 4W
6710 - 10W	6908 - 8W
6720 - 20W	6908 - 16W
6725 - 25W	6925 - 25W
6740 - 40W	
6760 - 60W	

CPR137G waveguide output standard, N female coaxial connector optional	PBR120 (WR75) waveguide output standard
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Power Input

24 V DC nominal
48 V DC nominal
115/230 V AC nominal

Accessories

- Hand-held Controller
- Remote Controller
- IF Interface Unit
- Power Suppliers
- Low Noise Block Converters (LNBs)
- Transmit Reject Filter (TRFs)
- Antenna mounting kits
- Redundancy Systems

CODAN quality and service

All L-Band IF VSAT transceivers are built and tested in CODAN ISO9001 quality certified manufacturing facility, and undergo 100% burn in and performance monitoring over the temperature range specified.

CODAN 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.

VSAT L-Band IF BUC C-Band CODAN 6700 series specifications

Low power Block Up Converter (LBUC)

IF input

Frequency range	
Standard band	950 to 1525 MHz
Extended band	950 to 1750 MHz
Impedance	50 Ω
Connector	N female
VSWR	1.5:1 maximum

Gain specification

Gain at 0 dB attenuator setting	
6705, 5W	68 dB nominal
6710, 10W	71 dB nominal
6720, 20W	74 dB nominal
Transmit attenuator	0, 4, 8 and 12 dB settings
Gain flatness	± 1.5 dB maximum, 40 MHz ± 2.5 dB maximum, full band
Gain stability	
Over any 50°C range	$\pm 1,5$ dB maximum
Over -40°C to +55°C	
- when frequency set	$\pm 2,0$ dB maximum

-when frequency not set	±3,0 dB maximum
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RF output

Frequency range	
VSAT Standard band	5.850 to 6.425 GHz
VSAT Extended band	5.850 to 6.725 GHz
Power @ 1 dB GCP	
6705, 5W	+37.0 dBm typical
6710, 10 W	+40.0 dBm typical
6720, 20 W	+43.0 dBm typical
Carrier to intermodulation ratio	-26 dBc minimum (two carriers, each @ 6 dB OPBO from 1 dB GCP)
Output power meter	
Range	Down to P1dB - 15 dB
Absolute accuracy	
when frequency set	±1,0 dB maximum
when frequency not set	±2,0 dB maximum
Relative accuracy	
when frequency set	±0,5 dB maximum
when frequency not set	±1,0 dB maximum
Modes	CW, burst with adjustable threshold
Connector	CPR137G with 5.0 mm through holes, N female optional
VSWR	2.0:1 maximum

Spurious output

Spurious	-50 dBc maximum @ 3 dB OPBO
Harmonics	-60 dBc maximum @ 3 dB OPBO

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	10MHz
Level	-10 to +5 dBm

Frequency conversion

VSAT Standard band	7300, 7375 MHz user selectable
VSAT Extended band	7300, 7375, 7600, 7675 MHz user selectable
Sense	Spectrum inverting

Gain specification

Gain flatness	±0,75 dB maximum, 40MHz ±1,5 dB maximum, full band
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RF output

Power @ 1 dB GCP	
6710 10W 6720 20W	+40.0 dBm minimum +dBm minimum
VSWR	1.5:1 maximum

Spurious output

Spurious output	Meets EN 301 443 with 53 dBi antenna gain
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Monitor and control (FSK)

Mode	FSK modulation
Protocol	User selectable
Data format	User selectable
Connector	Multiplexed on the transmit IF
Data transmitter	
Frequency	650 kHz ± 1%
Deviation	60 kHz ±1%
Sense	+60 kHz = mark, -60 kHz = space
Output level	-3 dBm nominal
Start tone time	10 ms minimum
Data receiver	
Nominal frequency	650 kHz
Locking range	±30 kHz
Input sensitivity	-15 dBm minimum

Monitoring and control (digital)

Interfaces	RS232, RS485 (4-wire, 2-wire strapable)
Data format	
RS232	9600 bit/s, 8 bits no parity, 1 stop bit, ASCII protocol
RS485	User selectable format and protocol
Connector	MIL-C-26482 12-14S socket

Monitoring and control functions**Serial interface functions**

Power amplifier on, Output power, Temperature, Fault status, Model number, Serial number, Software version, Compensation frequency, Transmit attenuator, Burst threshold, Packet address, Packet protocol.

Other monitoring functions

Loss of lock causes alarm contact closure, reduces BUC current drain by >50% and attenuates RF output by >70 dB. LED indicators for: Power on, Transmit on and BUC fault.

Power

Power supply

24 V nominal (6705)	19 to 35 V DC
48 V nominal (6705, 6710, 6720)	42 to 60 V DC

Power connector options

6705, 6710, 6720	Via transmit IF connector
6710, 6720	Via external DC input connector

Power consumption

6705, 5 W	60W maximum
6710, 10 W	105W maximum
6720, 20 W	130W maximum

Environmental

Operating temperature range	-40°C to +50°C
Relative humidity	100%
Cooling	
6705	Convection
6710, 6720	Forced air
Weatherproofing	Sealed to 34 kPa

Physical

Size

6705	335mm L x 182mm W x 104mm H
6710, 6720	335mm L x 182mmW x 137mm H

Weight

6705	5,6 kg
6710, 6720	5,8 kg

Mounting

Feed mounting	Standard
Boom mounting	Standard on N-output models Optional on waveguide output model

CODAN BUC Low power VSAT Ku-Band 6900 series specifications

Baseline RF specifications

IF input

Frequency range	
Standard & Offset band	950 – 1450 MHz

Extended band	950 – 1700 MHz
Impedance	50 Ω
Connector	N female
VSWR	1,5:1 maximum

Gain specification

Gain @ 0 dB attenuator setting	
6904	67 dB nominal
6908	70 dB nominal
Transmit attenuator	0, 4, 8 and 12 dB settings
Gain flatness	± 1.5 dB maximum, 40MHz ± 2.5 dB maximum, full band
Gain stability	
Over any 50°C range	$\pm 1,5$ dB maximum
Over -40°C to +55°C	
- when frequency set	$\pm 2,0$ dB maximum
- when frequency not set	$\pm 3,0$ dB maximum

RF output

Frequency range	
VSAT Standard band	14.0 to 14.5 GHz
VSAT Extended band	13.75 to 14.5 GHz
VSAT Offset band	13.75 to 14.25 GHz
Мощность по компрессии 1 дБ (P1дБ)	
6705, 5 Вт	+37.0 дБм типичный
6710, 10 Вт	+40.0 дБм типичный
6720, 20 Вт	+43.0 дБм типичный
Carrier to intermodulation ratio	-25 dBc minimum (two carriers, each @ 6 dB OPBO from 1 dB GCP)
Output power meter	
Range	Down to P1dB - 15 dB
Absolute accuracy	
when frequency set	$\pm 1,0$ dB maximum
when frequency not set	$\pm 2,0$ dB maximum
Relative accuracy	
when frequency set	$\pm 0,5$ dB maximum
when frequency not set	$\pm 1,0$ dB maximum
Modes	CW, burst with adjustable threshold
Connector	PBR120 flange (WR75) with 4.2 mm through holes
VSWR	2.0:1 maximum

Spurious output

Spurious	-50 dBc maximum @ 3 dB OPBO
Harmonics	-60 dBc maximum @ 3 dB OPBO

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 - +5 dBm
Input connector	Multiplexed on the transmit IF

Frequency conversion

Standard & Extended band	15450MHz
Offset band	15200MHz
Sense	Spectrum inverting

Enhanced RF specifications**Gain specification**

Gain flatness	$\pm 0,75$ dB maximum, 40MHz $\pm 1,5$ dB maximum, full band
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RF output

Power @ 1 dB GCP	
6904, 4W	+36.0 dBm minimum
6908, 8W	+39.0 dBm minimum
VSWR	1.5:1 maximum

Spurious output

Spurious output	Meets EN 301 443 with 54 dBi antenna gain
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Monitor and control (FSK)

Mode	FSK modulation
Protocol	User selectable
Data format	User selectable
Connector	Multiplexed on the transmit IF
Data transmitter	
Frequency	650 kHz \pm 1%
Deviation	60 kHz \pm 1%
Sense	+60 kHz = mark, -60 kHz = space
Output level	-3 dBm nominal
Start tone time	10 ms minimum

Data receiver	
Nominal frequency	650 kHz
Locking range	±30 kHz
Input sensitivity	-15 dBm minimum

Monitoring and control (digital)

Interfaces	RS232, RS485 (4-wire, 2-wire strapable)
Data format	
RS232	9600 bit/s, 8 bits no parity, 1 stop bit, ASCII protocol
RS485	User selectable format and protocol
Connector	MIL-C-26482 12-14S

Monitoring and control functions

Serial interface functions

Power amplifier on, Output power, Temperature, Fault status, Model number, Serial number, Software version, Compensation frequency, Transmit attenuator, Burst threshold, Packet address, Packet protocol.

Other monitoring functions

Loss of lock causes alarm contact closure, reduces BUC current drain by >50% and attenuates RF output by >70 dB. LED indicators for: Power on, Transmit on and BUC fault.

Power

Power supply options

24 V nominal (6904)	19 to 35 V DC
48 V nominal (6904, 6908)	42 to 60 V DC

Power connector options

6904, 6908	Via transmit IF connector
6908	Via external DC input connector

Power consumption

6904	80W maximum
6908	115W maximum

Environmental

Operating temperature range	-40°C to +50°C
Relative humidity	100%
Cooling	
CODAN 6904	Convection
CODAN 6908	Forced air
Weatherproofing	Sealed to 34 kPa

Physical

Size

6904	360mm L x 182mm W x 104mm H
6908	360mm L x 182mmW x 137mm H

Weight

6904	5.4 kg
6908	5.7 kg

Mounting

6904, 6908	Feed mount standard Boom mounting kit optional
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VSAT Buc | Block Up Converter | C Band | Ku Band

http://vsat-buc.at-communication.com/en/codan/vsat_buc_6900.html