CODAN

SATELLITE COMMUNICATIONS

Block Up Converter Accessories

6500 series

A range of accessories and options are available for Codan's 6700 series C-Band and 6900 series Ku-Band Block Up Converters (BUCs). These include options to setup and program the BUCs, increase system availability, and accessories needed to complete the system such as waveguide components.

6560 AND 6570 MONITOR AND CONTROL

The Hand-held Controller 6560 may be connected directly to the BUC or to the Redundancy Controller 6586 to provide local control of the BUCs and/or the Redundancy Controller.

The Remote Controller 6570 provides system status indication, and remote manual control over both BUCs and redundancy stream selection.

Hand-held Controller 6560

6586 BUC REDUNDANCY SWITCHING SYSTEMS

Codan satellite equipment has been setting industry standards for performance and reliability since the early 1990s. However, there are certain critical applications where 1:1 redundancy protection may be required. Codan offers a range of switching equipment that integrates easily with the 6700 series C-Band or 6900 series Ku-Band BUCs. The systems include interconnecting cables, mounting hardware and waveguide connections.

Simple configuration

A complete system comprises two BUCs of any power rating, two Low Noise Block converters (LNBs) in transmit/receive systems, and the outdoor mounting Redundancy Controller 6586 that provides integral IF switching and simultaneously controls the RF switches. This configuration, also called stream redundancy, ensures unambiguous, simultaneous switchover of both IF and RF paths in the transmit and receive directions. The Controller is powered from the AC mains and is fitted with a high reliability power supply.

Flexible configuration

Flexible operating modes enable 'warm' or 'hot' standby operation. Automatic or manual control is available. Generously rated terminations enable the off-line BUC to be continuously activated for true hot standby capability.

For systems requiring BUC redundancy only, a "transmit only" version of the Redundancy Controller 6586 is available.

Transmit/receive systems

Combined waveguide/coaxial switch for C-Band BUCs with N-type outputs.

Separate waveguide switches for BUCs with waveguide outputs.

Transmit only system

Single waveguide switch for BUCs with waveguide outputs.

6580 POWER SUPPLY

The BUC Power Supply 6580 injects 48 V DC into the BUC and blocks any DC voltage present on the IF cable but passes both the 10 MHz reference and FSK M&C signals. The 6580 is weatherproof and may be located outdoors near the BUC. The 48 V DC output voltage is also available on a terminal block in the 6580 to enable the connection of BUCs powered via a separate power cable.

LNBs

Codan offers a choice of externally referenced C-Band and Ku-Band LNBs.

WAVEGUIDE COMPONENTS

A variety of waveguide components are available in both C-Band and Ku-Band including flexible-twistable waveguide, Transmit Reject Filters and waveguide to coaxial adaptors.

6560 Hand-held Controller

Power supply	8 to 12 V DC from BUC
Power consumption	1.5 W max at 10 V
Operating temperature	–20°C to +55°C
Volume	130 mm W x 40 mm D x 75 mm H
Weight	0.36 kg
Data interface	RS232 serial
Data rate	9600 bps, no parity, 8 data bits, 1 stop bit
LED indicators	BUC PA On; Summary Fault
M&C settings	LO, Tx Default State, Redundancy Mode, Serial Data Settings (Rate, Data Bits, Parity, Stop Bits, Protocol, Address, Echo), RS485 termination, Tx State, Online State, Faults (PA, Fan, Tx Power, BUC Temp, LO Lock, Internal, LNB, Redundancy), Identity (Model No, Serial No, Firmware Version, Firmware Part No, PCB Build Numbers), Tx (Attenuation, Power Threshold), Compensation Frequency (RF, IF), Power (Output RF, Burst RF, Burst Threshold, Burst Min/ Max), Temperature (BUC, BUC Min/ Max), Reset (BUC, Faults, To Defaults)

6570 Remote Controller

Power supply	8 to 12 V DC from BUC
Power consumption	1.5 W max at 10 V
Operating temperature	–5°C to +55°C
Volume	483 mm W x 45 mm D x 86 mm H (19" Rack-mounted x 2RU)
Weight	0.5 kg
Data interface	RS485 serial
Data rate	9600 bps, no parity, 8 data bits, 1 stop bit
LED indicators	BUC 1 PA On; BUC 1 Summary Fault; BUC 1 On-line; BUC 1 M&C Active; BUC 2 PA On; BUC 2 Summary Fault; BUC 2 On-line; BUC 2 M&C Active
M&C settings	LO, Tx Default State, Redundancy Mode, Serial Data Settings (Rate, Data Bits, Parity, Stop Bits, Protocol, Address, Echo), RS485 termination, Comms to BUC 1 and BUC 2, Terminate Bus, Tx State, Online State, Faults (PA, Fan, Tx Power, BUC Temp, LO Lock, Internal, LNB, Redundancy), Identity (Model No, Serial No, Firmware Version, Firmware Part No, PCB Build Numbers), Tx (Attenuation, Power Threshold), Compensation Frequency (RF, IF), Power (Output RF, Burst RF, Burst Threshold, Burst Min/ Max), Temperature (BUC, BUC Min/ Max), Reset (BUC, Faults, To Defaults)

6550 IF Interface Unit

Frequency range	950 to 1750 MHz
Impedance	50 Ω (Tx to BUC); 75 Ω (Rx from LNB)
Gain flatness	±0.25 dB over entire frequency band
Connectors	SMA Female (Tx/Rx to modem); N-type F (Tx to BUC); F-type Female (Rx from LNB)
Tx IF output signals	DC Power: 48 ± 1 V DC at 1.8 A max; 10 MHz ref (0 dBm ±2 dBm); FSK M&C (–2 dBm nominal)
Rx IF output signals	DC Power: 18 ± 1 V DC at 0.7 A max; 10 MHz ref (0 dBm ±2 dBm)
Reference frequency	10 MHz
Stability over –5°C to +55°C	$\pm 5 \times 10^{-8}$ max
Ageing	$\pm 1 \times 10^{-7}$ max
Phase noise	
100 kHz	–140 dBc/Hz max
1 kHz	–150 dBc/Hz max
10 kHz	–160 dBc/Hz max
100 kHz	–160 dBc/Hz max
External reference input frequency	10 MHz
External reference input level	0 dBm ±2 dBm
External reference input connector	BNC Female (50 Ω)
BUC M&C mode	FSK to/from BUC
User M&C interfaces	RS232, RS485/ RS422
User M&C connectors	DB9 (RS232); DB25 (RS485/ RS422)
DC-powered BUC current drain fault detection	<0.4 A or >2.25 A causes a fault indication
AC-powered BUC current drain fault detection	<20 mA causes a fault indication
Rx path current drain fault detection	<0.1 A or >0.8 A causes a fault indication
Mains power supply	115/230 V AC ±15% autoranging
Mains frequency	47 to 63 Hz
Power consumption	100 W nominal
Operating temperature range	–5°C to +50°C
Relative humidity	90% non-condensing
Cooling	Forced air
Volume	483 mm W x 220 mm D x 44 mm H (19" Rack-mounted x 1RU)
Weight	3 kg

	6580B Power Supply	6582 Power Supply
DC output connector	On IF output N-type connector (positive on centre pin) and screw terminal block	MS 2-pin Female
Output voltage	48 V DC nominal	48 V DC nominal
Output power	250 W maximum	600 W maximum
Power consumption	350 W maximum	700 W maximum
Protection	User accessible fuse	User accessible fuse
AC mains input voltage	115/230 V AC ±15% field switchable	115/230 V AC ±15% field switchable
AC mains input frequency	47 to 63 Hz	47 to 63 Hz
AC mains input connector	Screw terminal block	MS 4-pin Male
Weight	11 kg	14 kg
Size	200 mm W x 160 mm D x 370 mm H	241 mm W x 160 mm D x 462 mm H
Mounting	Pole mounting kit supplied	Pole mounting kit supplied
Operating temperature	–40°C to +55°C	–40°C to +55°C
Relative humidity	100%	100%
Weatherproofing	IP65	IP65
IF path through loss over 950 to 1750 MHz	1 dB maximum	N/A
IF path through loss at 10 MHz 1 dB maximum	1 dB maximum	N/A
IF path through loss over 590 to 710 kHz	1 dB maximum	N/A
Gain flatness over 950 to 1750 MHz	±0.5 dB maximum over 950 to 1750 MHz	N/A
Gain flatness per 40 MHz	±0.2 dB maximum per 40 MHz	N/A
Impedance	50 Ω	N/A
VSWR	1.5:1 maximum	N/A
Connectors	N-type Female	N/A
IF input voltage blocking	60 V DC minimum	N/A

6582 Power Supply

6580B Power Supply

6586 Redundancy Switching Systems

6586 Redundancy Controller

IF Switching	
Frequency range	950 to 1750 MHz
Receive path loss to on-line output	2.0 dB maximum
Receive path loss to off-line output	50 dB minimum
Ripple	±0.2 dB typical
Transmit/receive isolation	90 dB minimum
Connectors	N-type Female
Impedance	50 Ω
VSWR	1.5:1 maximum
Transmit IF splitter loss	8.0 dB maximum
Transmit IF splitter ripple	±0.2 dB typical
10 MHz reference paths loss to BUCs and LNBs	6.0 dB maximum

RF Switching	C-Band	Ku-Band
Frequency range, transmit	5.850 to 7.025 GHz	13.75 to 14.5 GHz
Frequency range, receive	3.400 to 4.800 GHz	10.95 to 12.75 GHz
Transmit coaxial N-type switch loss	0.5 dB maximum	N/A
Transmit waveguide switch loss	0.1 dB maximum	0.5 dB maximum
Receive waveguide switch loss	0.1 dB maximum	0.5 dB maximum
Impedance (N-type switch)	50 Ω	N/A
Transmit coaxial N-type switch VSWR	1.3:1 maximum	N/A
Transmit waveguide switch VSWR	1.1:1 maximum	1.1:1 maximum
Receive waveguide switch VSWR	1.1:1 maximum	1.1:1 maximum
Transmit coaxial N-type switch connectors	N-type Female	N/A
Transmit waveguide switch connectors	CPR137G flange, M5 threads	WR75, PBR120 flange, M4 threads
Receive waveguide switch connectors	CPR229G flange, M6 threads	WR75, PBR120 flange, M4 threads
Weight	WR229/N switch 2.6 kg; WR229 switch 2.4 kg; WR137 switch 0.8 kg	WR75 switch 0.5 kg

General	
Switch operating modes	Auto/manual
Switch-over time	1 s maximum
M&C indicators	BUC1, BUC2 status; LNB1, LNB2 status; Redundancy controller status; Waveguide switch status and position; Fuse status
Remote control	Auto/Manual select; Stream select
Power supply	Input voltage 115/230 V AC ±15%
DC to BUCs	Voltage 48 V nominal @ 135 W maximum to each BUC
DC to LNBs	Voltage 15 V nominal @ 9 W maximum to each LNB
Power consumption	350 W maximum
Operating temperature	–40°C to +55°C
Relative humidity	100%
Weatherproofing	Sealed to IP66
Size	300 mm W x 185 mm D x 370 mm H
Weight	14 kg

Note: Receive path related specifications not applicable to "transmit only" version.

SPECIFICATIONS

LNB	C-Band	Ku-Band
Input frequency range	3400 to 4200 MHz	Band 1: 10950 to 11700 MHz Band 2: 11700 to 12200 MHz Band 3: 12250 to 12750 MHz
Noise temperature	45K at 20°C maximum	100K at 20°C maximum
Gain specification	60 dB typical	60 dB typical
Local oscillator frequency	5150 MHz	Band 1: 10000 MHz Band 2: 10750 MHz Band 3: 11300 MHz
Output frequency range	950 to 1750 MHz	950 to 1450/1700 MHz
Output connector	N-type female	
Phase noise (SSB) with the following frequency reference:		
100 kHz	–63 dBc/Hz	
1 kHz	–73 dBc/Hz	
10 kHz	–83 dBc/Hz	
100 kHz	–93 dBc/Hz	
Reference frequency	10 MHz	
Reference frequency phase noise at:		
100 kHz	–135 dBc/Hz max	
1 kHz	–145 dBc/Hz max	
10 kHz	–155 dBc/Hz max	
100 kHz	–155 dBc/Hz max	
Reference frequency level	–10 to 0 dBm	–5 to +5 dBm
Reference frequency connector	Via IF output	
DC power	+15 to +24 V DC	
DC supply current	500 mA maximum	
Power consumption	12 W maximum	
DC power connector	Via IF output	
Operating temperature range	–40°C to +55°C	
Relative humidity	100%	
Weatherproofing	Weatherproof	

TRF	C-Band	Ku-Band
Passband frequency	3400 to 4200 MHz	10700 to 12750 MHz
Passband VSWR	1.15:1 max	1.15:1 max
Insertion loss	0.15 dB max	0.2 dB max
Stopband frequency	5850 to 6725 MHz	13750 to 14500 MHz
Rejection	55.0 dB min	55.0 dB min
Weight	1 kg max	0.3 kg max
Pressurisable to	34 kPa min	34 kPa min
Operating temperature	–40°C to +55°C	–40°C to +55°C
Flanges	CPR229G and CPR299F	WR75, cover and choke

Flextwist waveguide	C-Band	Ku-Band
Frequency range	5850 to 8200 MHz	10000 to 15000 MHz
Length	910mm (36 inches) nominal	910mm (36 inches) nominal
Flanges	CPR137G and CPR137	PBR120 choke and cover
VSWR	1.2:1 max	1.2:1 max
Attenuation	0.25 dB max	0.45 dB max
CW power rating	2000 W min	750 W min
Peak power rating	500 W min	140 W min

Waveguide adaptor	C-Band	Ku-Band
Frequency range	5850 to 8200 MHz	10000 to 15000 MHz
Flange	CPR137G	PBR120 Choke
VSWR	1.25:1 max	1.35:1 max
Connector	N-type female	N-type female
Attenuation	0.1 dB max	0.15 dB max

CODAN QUALITY AND SERVICE

The redundancy equipment is built and tested in Codan's ISO9001 quality certified manufacturing facility. 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.

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

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