



# 6500 & 7500 series BLOCK UP CONVERTER ACCESSORIES

## FEATURES AT A GLANCE

- Comprehensive range of accessories
- Unique, industry-leading features
- Easy to install
- One-stop-shop for complete satellite system
- Redundancy switching, please refer to the 7586L BUC Redundancy Switching System data sheet (part number 12-20257-EN)

A range of accessories and options are available for the CPI /Codan C-Band 6700/7700 series and Ku-Band 6900/7900 series BUCs. These include options to setup and program the BUCs, increase system availability, and accessories needed to complete the system such as waveguide components.



BUC webpage via a 7550

### 7550 LAN Interface

- Converts FSK data to provide direct serial USB and Telnet access to the M&C serial command set, and HTML pages of BUCs via an inbuilt Web server.
- Provides RJ45 TCP/IP LAN and USB Type-B serial connections.
- Pass-through inline connection with the IFL eliminates additional cabling to indoor unit.
- Daisy-chain connection to 7551 10 MHz Ref Source.



### 7552 FSK to USB Interface

- Provides access to the M&C serial command set of the BUC via a USB port of the PC.
- May be used as a permanent connection indoors or a temporary connection outdoors at the BUC.
- Pass-through inline connection with the IFL eliminates additional cabling.
- Powered via USB port.
- Daisy-chain connection to 7551.



### 7551 Reference Source

- Compact indoor/outdoor high stability 10 MHz Reference Source with several intelligent features.
- Pass-through inline connection with the IFL.
- Powered via IFL DC or external DC.
- Daisy-chain connection to 7550 or 7552.



### 7586L Redundancy Controller

Refer to 12-20257-EN.

### 6560 Hand-held Controller

- User-friendly menu-driven M&C of BUCs.
- Connects directly to the BUC or indirectly via the Controller.



### 6570 Remote Controller

- Provides remote M&C of BUCs via a user-friendly panel. Able to select and display on-line stream in a redundant system.



### LNBs

- Selection of externally referenced C-Band and Ku-Band Low Noise Block converters (LNBs).



### Waveguide Components

- Variety of waveguide components in both C-Band and Ku-Band including:
  - flexible-twistable waveguide
  - Transmit and Receive Reject Filters (TRF/RRFs)
  - waveguide to coaxial adaptors



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## Specifications

M&C Interface Units	7550 LAN Interface	7552 FSK to USB Interface
<b>Multiplexer</b>		
IFL signals	Pass-through IF, 10 MHz Reference, block FSK from modem	
IFL DC	Pass-through 12 to 60 V DC at 5 A max Maximum ripple 5 V p-p (Mini-BUCs, 16 W Ku-Band/20 W C-Band LBUCs)	
Frequency range	IF 950 to 1825 MHz, FSK 550 to 750 KHz, and 10 MHz (maximum level +10 dBm)	
Throughloss		
IF	1 dB max	
Reference 10 MHz	1 dB max	
Return loss	15 dB Input/Output for all signals (50 Ω termination)	
Gain flatness	IF band ±0.5 dB	
Connectors	Input/Output: 50 Ω N-type female, LAN RJ45, USB Type B receptacle	Input/Output: 50 Ω N-type female, USB Type B receptacle
<b>FSK Modem</b>		
Frequency range	550 to 750 KHz	
Output	-8 dBm	
Rx sensitivity	-20 dBm	
Serial data format	9600, 8-N-1	9600 to 57600, 8-N-1
USB driver	Compatible with Windows® 2000, XP, Vista	
Virtual serial port	COM4 or next available	
Terminal program	Hyperterminal or similar	
Ethernet interface	100BaseT, Auto MDIX	N/A
<b>Power Supply</b>		
Power supply input	Powered by 12 to 60 V DC from the IFL or external DC connector, 2-way plug in screw terminal, polarised and reverse polarity protected	Powered by 5 V DC from the USB port of PC
Power consumption	Typically 1.5 W	Typically 200 mW
<b>General</b>		
Operating temperature	-10 to +55°C	
Relative humidity	100% non-condensing	
Weatherproofing	Indoor use only	
Size	148 mm W x 94 mm D x 55 mm H	119 mm W x 81 mm D x 28 mm H
Weight	400 g	175 g
<b>LNB Down-Converters</b>		
	<b>C-Band</b>	<b>Ku-Band</b>
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
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
Noise temperature	45K @ 20°C max	75K @ 20°C max
Gain specification	60 dB typical	
Reference frequency (External)	10 MHz	
Reference frequency level	-10 to 0 dBm	-5 to +5 dBm
Maximum phase noise (SSB) of reference frequency:		
100 Hz	-135 dBc/Hz max	
1 kHz	-145 dBc/Hz max	
10 kHz	-155 dBc/Hz max	
100 kHz	-155 dBc/Hz max	
Phase noise (SSB) of BUC with reference frequency defined above:		
100 Hz	-63 dBc/Hz max	
1 kHz	-73 dBc/Hz max	
10 kHz	-83 dBc/Hz max	
100 kHz	-93 dBc/Hz max	
Output connector	N-type female	
Reference frequency connector	Via N-type IF output	
DC power	+15 to +24 V DC	
DC supply current	500 mA max	
Power consumption	12 W max	
DC power connector	Via N-type IF output	
Operating temperature range	-40°C to +55°C	
Relative humidity	100%	
Weatherproofing	Weatherproof	

<b>7551 Reference Source</b>		
<b>Internal 10 MHz Reference (Xtal Oven-controlled)</b>		
Stability	$\pm 1 \times 10^{-7}$ max over entire temperature range	
Aging	$\pm 1 \times 10^{-7}$ /year max	
Phase noise (SSB)		
100 Hz	-135 dBc/Hz max	
1 kHz	-145 dBc/Hz max	
10 kHz	-155 dBc/Hz max	
100 kHz	-160 dBc/Hz max	
Output level	2 dBm $\pm 2$ dB	
Cold start warm-up time	Typical 1 minute @ 25°C	
<b>10 MHz Reference Switching</b>		
Internal/External Reference switching	Automatic with level detection; level above -8 dBm on input (modem) port will cause switchover to External 10 MHz Reference (external 10 MHz has priority). Level less than -9.5 dBm will cause switchover to Internal Reference.	
Relay switch	High isolation and failsafe operation (switches to External Reference in event of power failure)	
Isolation	80 dB between Internal and External Reference Sources	
Switching time	<2 ms with hysteresis protection to prevent erratic switching	
<b>Multiplexer</b>		
IPL signals	Pass-through IF, FSK, and switch-through Internal/External 10 MHz Reference	
IPL DC	Pass-through 12 to 60 V DC at 5 A max (Mini-BUCs, 16 W Ku-Band/20 W C-Band LBUCs or LNBs)	
Frequency range	IF 950 to 1825 MHz, FSK 550 to 750 KHz, and 10 MHz (maximum level +10 dBm)	
Throughloss	IF and FSK: 1 dB max External 10 MHz: 1.5 dB max	
Return loss	15 dB Input/Output for all signals (50 $\Omega$ termination)	
Gain flatness	IF band $\pm 0.5$ dB	
Connectors	50 $\Omega$ N-type female Input/Output	
<b>Power Supply</b>		
Power supply input	Derives power for itself from the IPL input N-type connector (modem) port or from external DC mini 2-pin connector port (12 to 60 V DC negative earth)	
Power supply multiplexing	Can supply maximum 5 A DC through IPL to power LNBs or LBUCs (16 W Ku-Band/20 W C-Band). Cannot supply power to BUCs/LNBs via the external 2-pin mini connector port.	
Power supply switching	Automatic with level detection - switches to port with highest voltage	
Power supply ripple	External IPL DC power supply ripple must not exceed 5 V p-p	
Protection	Reverse polarity protected. Negative earth on both ports.	
Power consumption	Typically 2 W at 25°C	
External DC connector	Mini 2 pin mil-type 62IN-12E-8-2P	
<b>General</b>		
Operating temperature	-40 to +55°C	
Relative humidity	100% non-condensing	
Weatherproofing	Sealed to IP66. Pressure tested to 34 kPa.	
Mounting	4 x M6 x 12 mm threaded holes	
Size	119 mm W x 81 mm D x 28 mm H	
Weight	280 g	
<b>M&amp;C Controllers</b>	<b>6560 Hand-held Controller</b>	<b>6570 Remote Controller</b>
Power supply		8 to 12 V DC from BUC
Power consumption		1.5 W max @ 10 V
Operating temperature		-20°C to +55°C
Volume	130 mm W x 40 mm D x 75 mm H	483 mm W x 45 mm D x 86 mm H (19" Rack-mounted x 2RU)
Weight	0.36 kg	0.5 kg
Data interface	RS232 serial	RS485 serial
Data rate		9600 bps, no parity, 8 data bits, 1 stop bit
LED indicators	BUC PA On; Summary Fault	BUC 1/2 PA On; BUC 1/2 Summary Fault; BUC 1/2 On-line
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)	

Values noted are typical at 25°C. Equipment descriptions and specifications are subject to change without notice or obligation.

# C-Band 7700 & Ku-Band 7900 series BLOCK UP CONVERTER

## Common Specifications

IF input connector	N-type
IF input impedance	50 $\Omega$
IF input VSWR	1.7:1 max
Transmit attenuator steps	0 dB to 15 dB in 1 dB steps
RF output IMD ratio with 2 CW carriers each @ 6 dB OPBO	-25 dBc max
Spurious/harmonic output @ 3 dB OPBO	-50 dBc max
Maximum phase noise (SSB) of reference frequency: 100 Hz 1 kHz 10 kHz 100 kHz	-135 dBc/Hz -145 dBc/Hz -155 dBc/Hz -155 dBc/Hz
Phase noise (SSB) of BUC with reference frequency defined above: 100 Hz 1 kHz 10 kHz 100 kHz	-63 dBc/Hz -73 dBc/Hz -83 dBc/Hz -93 dBc/Hz
Group delay Linear (over any 10 MHz band) Parabolic (over any 80 MHz band) Ripple (over full band)	2 nsec <sub>pp</sub> max 0.00025 nsec/MHz <sup>2</sup> <sub>pp</sub> max 1 nsec <sub>pp</sub> max
AM/PM conversion	2.0°/dB max @ 2 dB OPBO
Monitor & Control Ethernet Interface  Digital data format RS232 Digital data format RS485 Digital connector FSK data format FSK data transmitter frequency FSK data transmitter deviation FSK data transmitter sense FSK output level FSK start tone time FSK data receiver nominal frequency FSK data receiver locking range FSK data receiver input sensitivity	TCP/IP Protocol, 10/100 BaseT via 8 pin 62IN-16J-10-8S-622 connector to RJ45 Embedded HTTP Web server, Telnet, and SNMP 9600 bps, 8 bits, no parity, 1 stop bit, ASCII protocol User selectable protocols MIL-C-26482 12-14S socket User selectable protocols 650 kHz $\pm$ 1% $\pm$ 60 kHz $\pm$ 1% +60 kHz=mark; -60 kHz=space -8 dB nominal 10 ms min 650 kHz $\pm$ 30 kHz -15 dBm min
Operating temperature range	-40 to +55°C
Non-operating/storage temperature range	-40 to +70°C
Relative humidity	100%
Weatherproofing	Sealed to 34 kPa



### Americas (Head Office)

CPI  
Satcom Products  
Palo Alto, CA USA

T: +1 (650) 846-3803  
F: +1 (650) 424-1744

### Europe, Middle-East Asia-Pacific & Africa

CPI International Inc.  
Cham, Switzerland  
T: +41 (41) 560 7550  
F: +41 (41) 560 755

CPI Europe Limited  
Surrey, England  
T: +44 (1932) 256 930  
F: +44 (1932) 241 271

CPI Asia Inc.  
Singapore  
T: +65 6225 0011  
F: +65 9620 5200