

# CPI 7586L BUC Redundancy Switching System

## Built for Satellite Communications Uplink Applications

Designed to integrate easily with CPI's range of Solid State BUCs.



Transmit and Receive 7586L Controller

### 7586L BUC Redundancy Switching System:

- Simple configuration consisting of two BUCs, the Controller, waveguide
- switches and cabling
- Warm or Hot Standby operation
- Automatic or manual control
- Transmit/Receive and Transmit Only systems
- Options for W/G or N-type C-Band BUCs

### The 7586L Controller:

- Provides integral IF switching and simultaneously controls the RF switches
- Powered from external redundant DC power supplies
- An economical Transmit Only version is available for systems requiring BUC redundancy only
- Optional high stability internal 10 MHz Reference
- RS232 serial with comprehensive command set
- LAN Interface, Telnet, SNMP, and user-friendly HTML pages provide flexibility for local and remote M&C

### FEATURES AT A GLANCE:

- Easy to install
- Stream redundancy
- Transmit (BUC) and receive (LNB) switching system
- Transmit (BUC) only system
- Internal 10 MHz reference option
- Reference redundancy switching
- Complete installation kit

CPI's 7586L BUC Redundancy Switching System is the industry benchmark with its enhanced features and versatile functionality.

Quality Management System - ISO 9001:2015



7586L Controller Web Server M&C

Specifications	7586L BUC Redundancy Switching System	
<b>IF SWITCHING</b>		
Frequency Range	950 to 1750 MHz	
Receive Path Loss to On-Line Output	2 dB max.	
Receive Path Loss to Off-line Output	40 dB min.	
Ripple	±0.2 dB typ.	
Transmit/Receive Isolation	90 dB min.	
Connectors	N-Type female	
Impedance	50 Ω	
VSWR	1.5:1 max.	
Transmit IF Splitter Loss	6 dB typ.	
Transmit IF Splitter Ripple	±0.5 dB max.	
10 MHz Reference Paths Loss to BUCs and LNBS	4.5 dB max.	
External 10 MHz Reference Input Level	+5 dBm max.	
Reference Stream Selection	Manual or Automatic	
FSK Path Loss	4.5 dB max.	
<b>RF SWITCHING</b>		
	<b>C-BAND</b>	<b>Ku-BAND</b>
Frequency Range, Transmit	5850 to 7025 MHz	13750 to 14000 MHz
Frequency Range, Receive	3400 to 4800 MHz	10950 to 12750 MHz
Transmit Coaxial N-Type Switch Loss	0.5 dB max.	N/A
Transmit Waveguide Switch Loss	0.1 dB max.	0.5 dB max.
Receive Waveguide Switch Loss	0.1 dB max.	0.5 dB max.
Impedance (N-Type Switch)	50 Ω	N/A
Transmit Coaxial N-Type Switch VSWR	1.3:1 max.	N/A
Transmit Waveguide Switch VSWR	1.1:1 max.	1.1:1 max.
Receive Waveguide Switch VSWR	1.1:1 max.	1.1:1 max.
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
<b>INTERNAL 10 MHz REFERENCE (OPTIONAL)</b>		
Stability	±1 x 10 <sup>-7</sup> max. over entire temperature range	
Aging	±1 x 10 <sup>-7</sup> max./year max.	
Frequency Adjustment	Digital, 256 steps, 30 ppb/step nominal	
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	0 dBm ±2 dBm to BUCs and LNBS	
Reference Switching	Fixed Internal, Fixed External, Auto Internal Priority, Auto External Priority	



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For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI before using this information for system design.

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Specifications and Functionality	7586L BUC Redundancy Switching System
<b>GENERAL</b>	
Switch Operating Modes	Auto/manual; Tx and Rx, or Tx Only
Switch-Over Time	1 s max
M&C External LED Indicators	BUC1, BUC2 status; LNB1, LNB2 status; Controller status; Auto/Manual mode, LAN status, REF 10 MHz status. LED indication may be switched off.
M&C Facilities	Seamless M&C of Controller and BUCs via RS232 or Ethernet Ethernet Interface — Telnet and SNMP MIB, plus Web server provides full GUI of 7586L and BUC FSK pass-through from modem to BUC via IFL Pass-through user interfaces RS232, R422/485 to/from BUC via Controller ASCII and Codan Packet Protocols with 3 letter mnemonic command set Direct connections of 6560 Hand-held Controller and 6570 Remote Controller to/from BUC via 7586L Controller Fine-trim Internal Reference Frequency Power Meter and Alarm Threshold settings for External Reference Auto-sense and switch between INT/EXT 10 MHz reference sources Set LNB Alarm Threshold and display LNB current draw Automatic polling to update status of 7586L Controller and flashing alarm display on web page
Remote Control	Auto/Manual select; Stream select: Reference select; plus full M&C via LAN or Internet
Power Supply Input Voltage (see Note 1)	Redundant 2 x 48 V DC, 500 mA nominal
Power Consumption	20 W max.
DC to LNBs	Voltage 16 V nominal @ 12 W max to each LNB
Operating Temperature	-40°C to +55°C
Relative Humidity	100%
Weatherproofing	Sealed to IP66
Size	391 mm W x 40 mm D x 112 mm H
Weight	2.1 kg (maximum with all options)
<i>Note 1: For a detailed overview of PSU solutions, please refer to System Solutions 17-60114 for C-Band and 17-60115 for Ku-Band.</i>	

### The 7586L Controller performs the following functions:

- Splits the transmit IF signal to drive both BUCs.
- Splits the 10 MHz reference and FSK M&C signals to both BUCs.
- Switches the 10 MHz reference and receive L-Band IF signals to/from both LNBs.
- Controls the switching state from either stream via the BUC M&C.
- Independent RS232 access to the M&C functions of the 7586L Controller via a PC.
- Independent RS232 access to the M&C of both BUCs via a PC.
- Independent access to the BUCs for the 6560 Hand-held Controller and the 6570 Remote Controller.
- Multi-drop RS422 bus to the BUCs via their serial ports for remote control.
- Internal redundant 16 V DC supply to power LNBs.
- DC power meter and alarm threshold settings for the LNB supply to suit a wide range of LNBs.
- Self-resetting, short circuit over-current protection of internal DC supplies — no external fuses.
- Comprehensive external LED monitoring of system status and faults; display may be switched off.
- User-selectable Hot or Warm Standby modes.
- Manual override for testing and fault analysis.
- Field software-selectable for Transmit/Receive or Transmit Only operation.

### Enhanced M&C Feature Set:

- Dual processor-based M&C for web-safe operation — separating controller switching functions and LAN access.
- In the event of software failure, the controller reverts to hardware switching maintaining basic redundancy functions.
- Embedded web server providing user-friendly HTML pages for M&C of the 7586L Controller and both BUCs.
- The RS232 M&C of all BUCs including LBUCs and MBUCs is converted and presented as web pages via the 7586L LAN interface. This enables indirect Ethernet access to LBUCs and MBUCs.
- 10/100 BaseT LAN/Ethernet connectivity via the LAN interface, with external LAN activity LED.
- Telnet and SNMP interfaces with MIBs available from the Codan web site.

### Optional internal reference source for BUCs:

- High stability 10 MHz Xtal temperature oven-controlled oscillator.
- Fine frequency adjustment of internal 10 MHz reference to compensate for aging.
- Independent power level meter and alarm threshold settings for external 10 MHz reference for both BUCs and LNBs.
- Reference redundancy capability with automatic detection of internal and external 10 MHz reference and automatic switching between internal and external sources.
- User-selectable setting of internal or external 10 MHz as primary or secondary sources.



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## Example of serial data via RS232 and Telnet of 7586L

-----System Status-----

```

On-line Stream          1
Operating Mode         Auto
Ref Source             Ext
Ext Ref Pwr BUC (dBm)  -1.7
Ext Ref Pwr LNB (dBm) -2.6
Ext Ref Pwr Thresh (dBm) -7.0
Waveguide Switch      Tx+Rx
Startup Time (s)      10
LED Status             On
                       LNB 1 LNB 2
LNB Voltage (V)       16.0 16.0
LNB Current (mA)     375 374
    
```

7586L VSS Command

-----System Status-----

```

PA Status              On          Tx Attenuator          12
Tx On (RS232)         On (1)   Pwr Alarm Thresh      0.0
Tx On (RS485)         On (1)   Burst Pwr Thresh      0.0
Tx On (FSK)           On (1)   Serial Interface       9600,8,N,1,U
Tx On (HTTP)          On (1)   Packet Protocol        NDSatcom (4)
Tx On (SNMP)          On (1)   Packet Address         1
Tx On (TELNET)        On (1)   IP Address             192.168.0.12
Tx Default Last       (1)     Subnet Mask            255.255.255.0
RF Comp Freq          0       Gateway IP Address     192.168.0.1
IF Comp Freq          0       Red'cy -Mode           Hot (2)
LO Freq               13050   -On/Off Line           On (1)
LED Status            On (1)   Ref Source             External
    
```

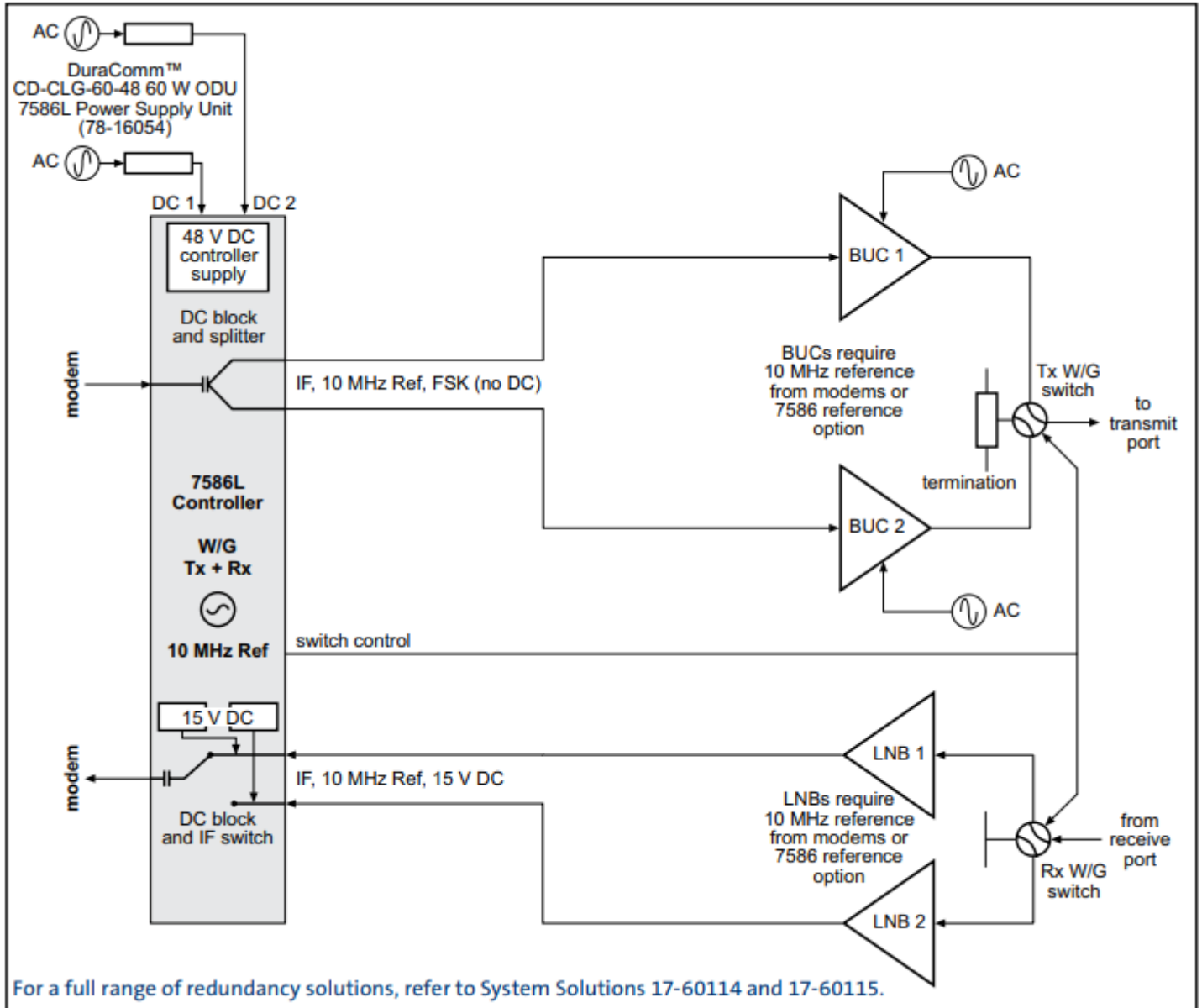
BUC VSS Command

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

## Transmit and Receive 7586L Controller



# Transmit and Receive Redundancy System



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