

# VSAT Redundant System Solutions



## DESCRIPTION

The Paradise Datacom family of VSAT products can be configured in a variety of custom systems to meet any redundant system application. VSAT redundant systems can be configured to meet any output power level from 2W to 100W in Ku band or 5W to 170W in C Band. Creative application of the versatile RCPD-1100 system controller enables redundant system designs that provide the highest levels of system reliability while remaining cost effective.

### FEATURES

- Single Box Ku Band BUCs to 10W
- Single Box C Band BUCs to 20W
- C Band Booster Amplifiers to 170W
- Ku Band Booster Amplifiers to 100W
- Single or Dual Redundant Configurations
- OEM L Band Modem integration
- Remote M&C via the RCPD-1100 Controller

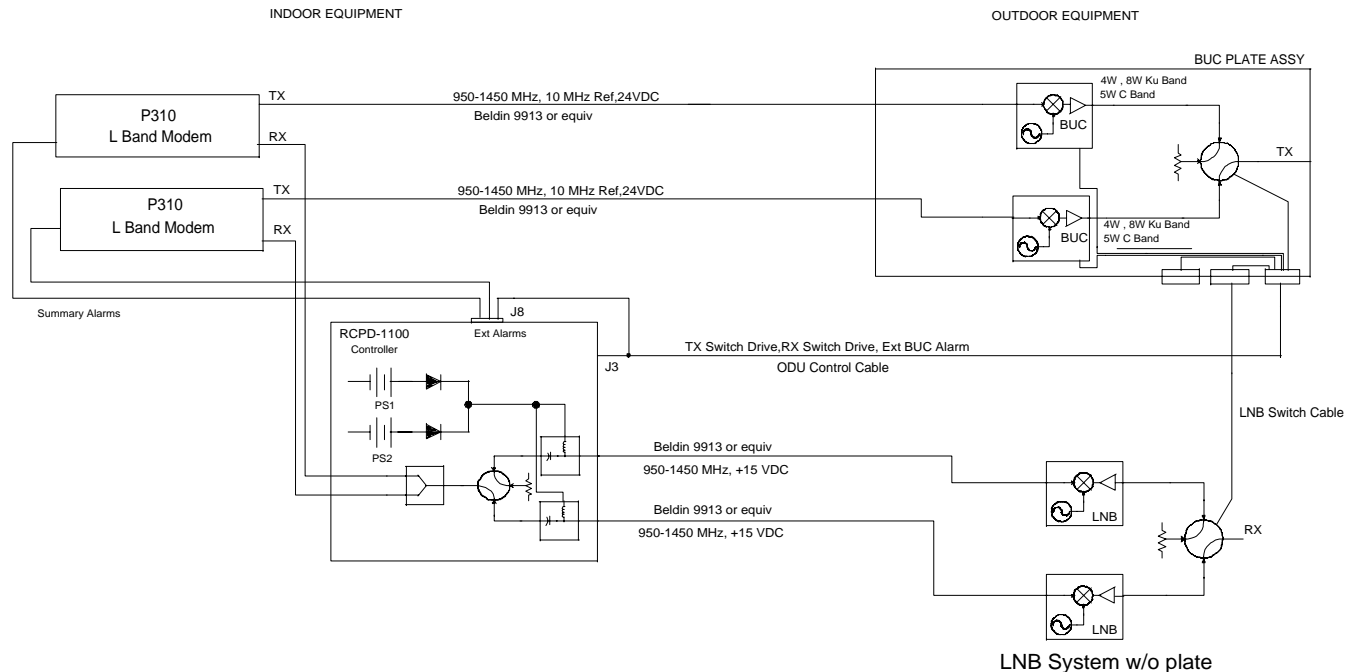
### OPTIONS

- External Power Supplies
- LNB Redundancy
- RCPD-1100 Ethernet M&C
- Internal 10 MHz reference
- Transmit Only Systems
- Receive Only Systems

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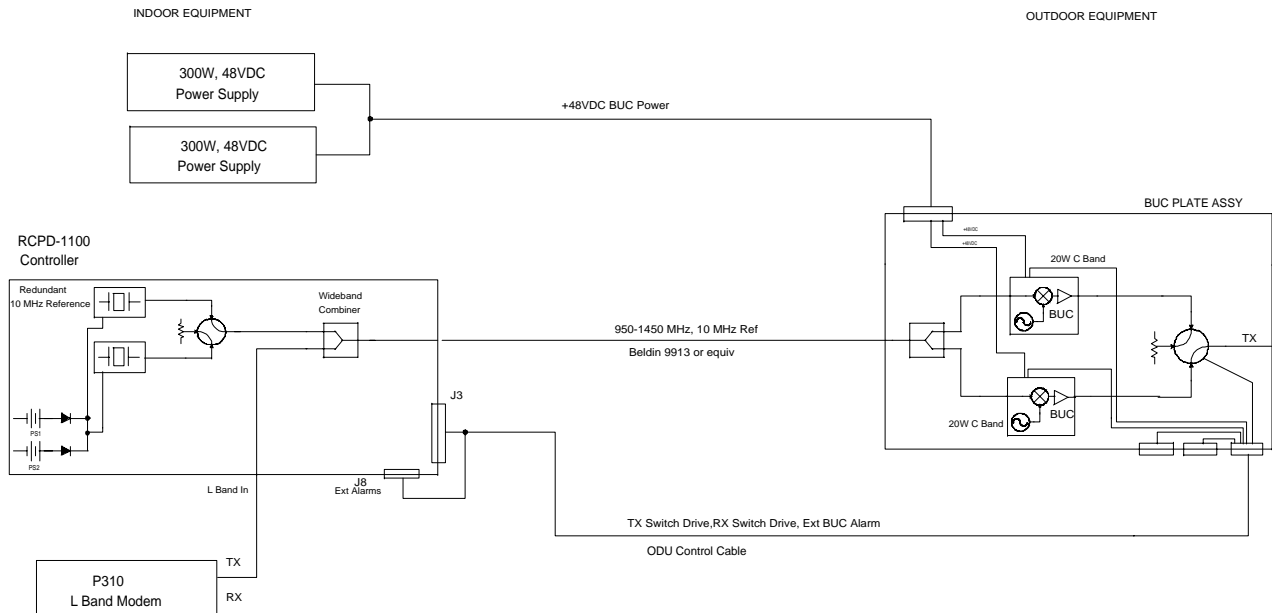
# VSAT Redundant System Solutions



## Configuration #1: Dual Redundant (Transmit & Receive) System in Chain Redundancy

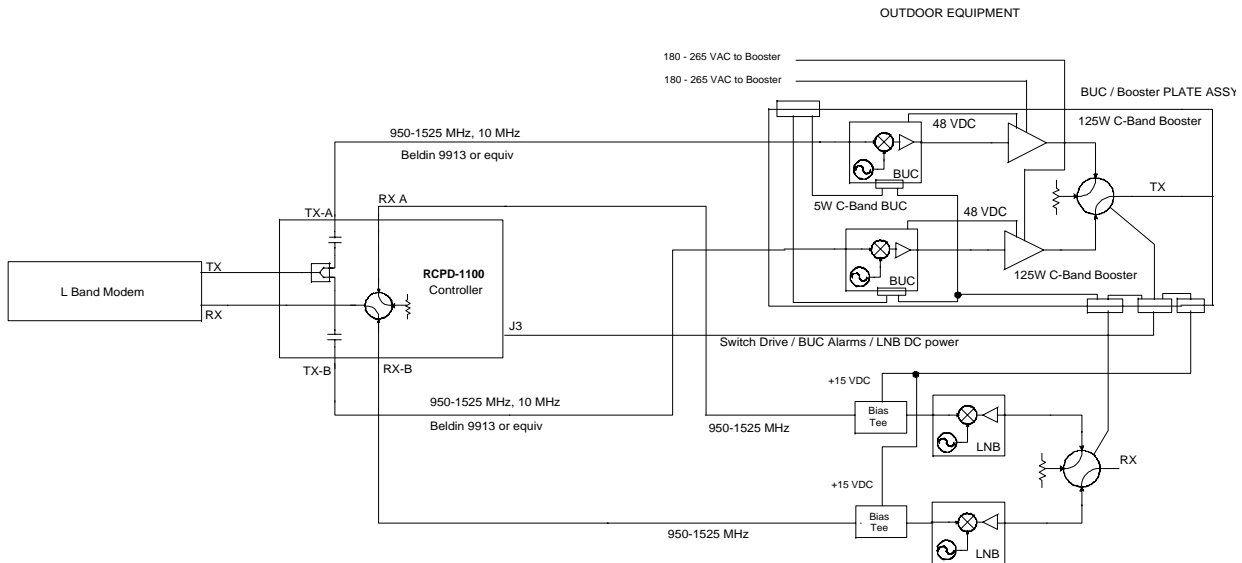
### Advantages of Chain Redundancy

- BUCs can be powered by Modem
- BUC 10 MHz reference supplied by Modem
- Modem FSK control signal for M&C of BUC reported by Modem
- Redundancy in IFL cabling
- LNBs powered by RCPD-1100
- Most Economical Redundant System Solution



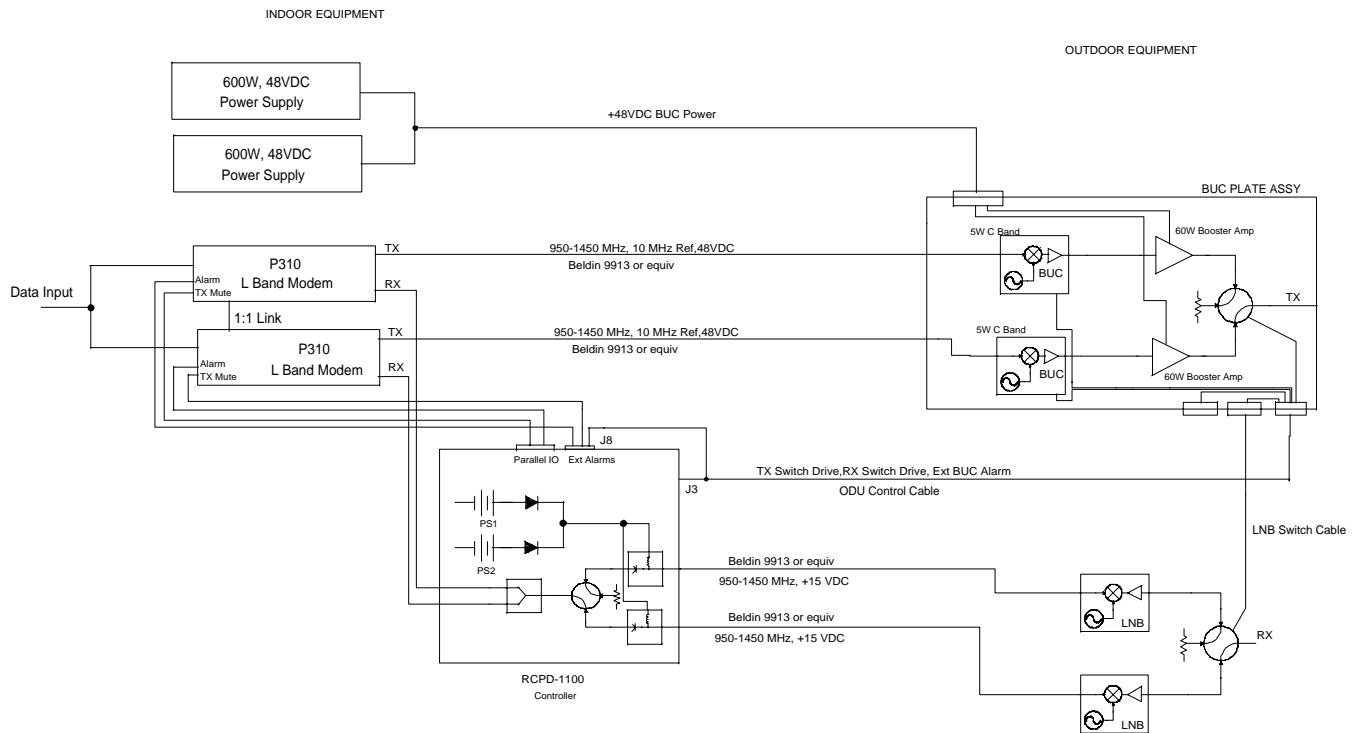
## Configuration #2: Transmit only (BUC) Redundant System

- RCPD-1100 Controller configured with redundant 10 MHz reference oscillators
- 10 MHz reference then diplexed onto IFL by the RCPD-1100
- Redundant 48 VDC power supplies for 20W C Band BUCs
- Single L Band IFL for Transmit and Receive



## Configuration #3: Dual Redundant (Transmit & Receive) System in Chain Redundancy

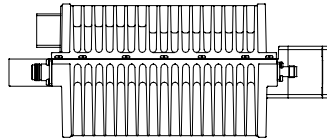
- Single Modem input with dual redundant RF converters
- RCPD-1100 configured with L band splitter for TX output and IF switch for RX input
- LNB bias supplied by RCPD-1100 via the Switch / Control cable
- BUCs are 'back-powered' by AC/DC power supply in high power booster amplifier, eliminating the need for separate indoor power supplies.
- LNBs configured with internal 10 MHz reference



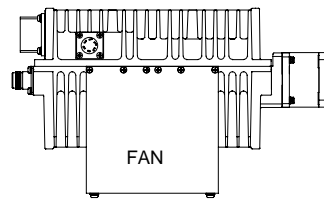
## Configuration #4: Dual Redundant System with Chain Redundancy and Booster Amplifiers

- RCPD-1100 Controller along with Modem 1:1 internal controller handles chain redundancy with single data input.
- ODU configured with BUC / 60W C Band Booster Amplifiers
- Redundant Power Supplies for Booster Amplifiers
- BUCs powered by Modems
- LNBs powered by RCPD-1100 Controller

## C Band Outdoor RF Converter Configurations

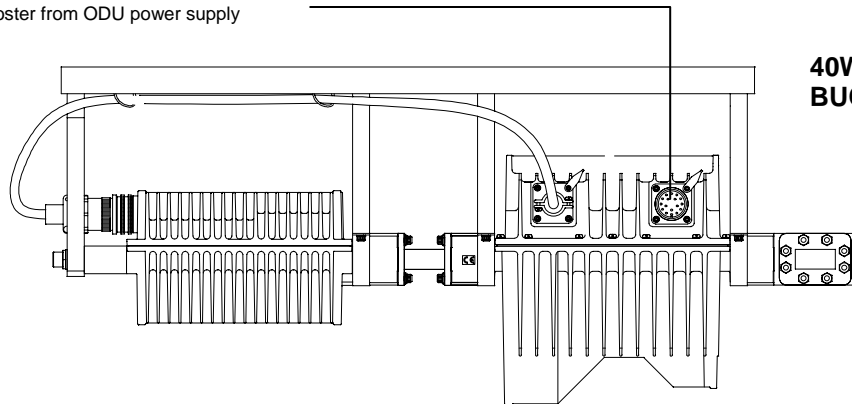


**5W BUC**

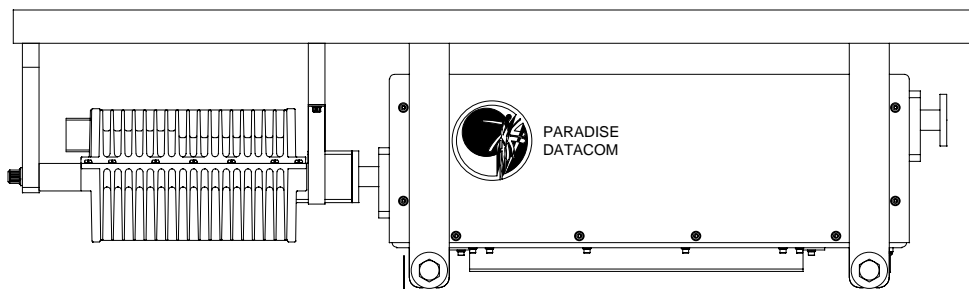


**10W, 20W BUC**

48 VDC for Booster from ODU power supply



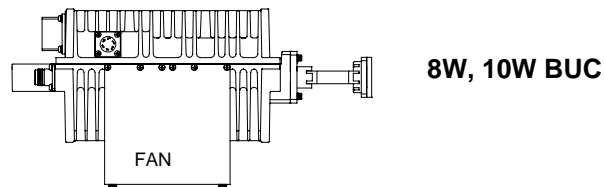
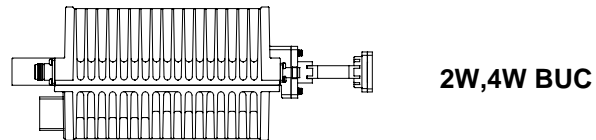
**40W, 60W  
BUC/Booster**



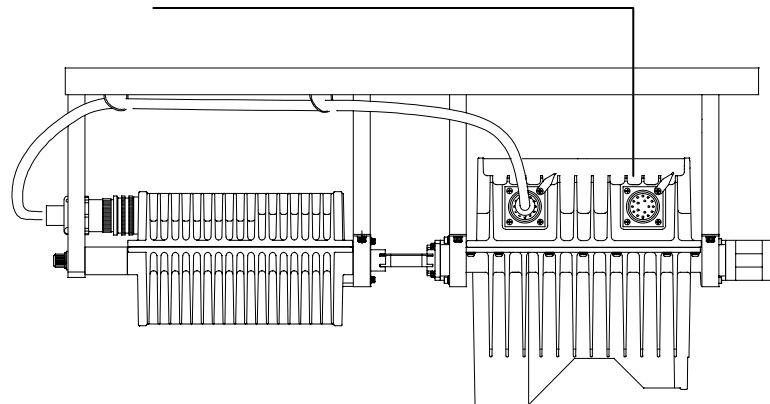
**125W, 170W  
BUC/Booster**

180-265 VAC input power

## Ku Band Outdoor RF Converter Configurations

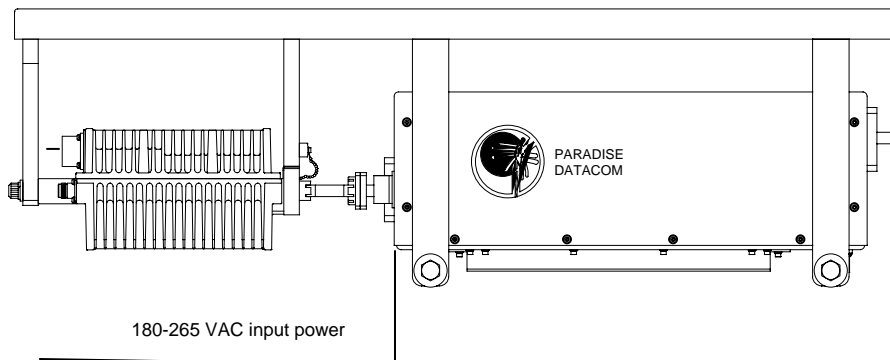


48 VDC for Booster from ODU power supply



**Output  
Power**

**16 W  
25 W  
30 W  
40 W**



## General Transmitter Specifications

PARAMETER	C-Band	KU-BAND
TX Output Frequency		
Standard Band	5.85 - 6.425 GHz	14.0 - 14.5 GHz
TX Waveguide Feed	WR-137	WR-75
TX Waveguide Flange	CPRG	Grooved
Output Power	5W - 170W	2W - 100W
Gain Flatness	± 2 dB	± 2 dB
TX Intermodulation (P1dB-3dB)	-26 dBc	-26 dBc
Spurious in band	-50 dBc	-50 dBc
Phase Noise	IESS 308,309 compliant	IESS 308,309 compliant

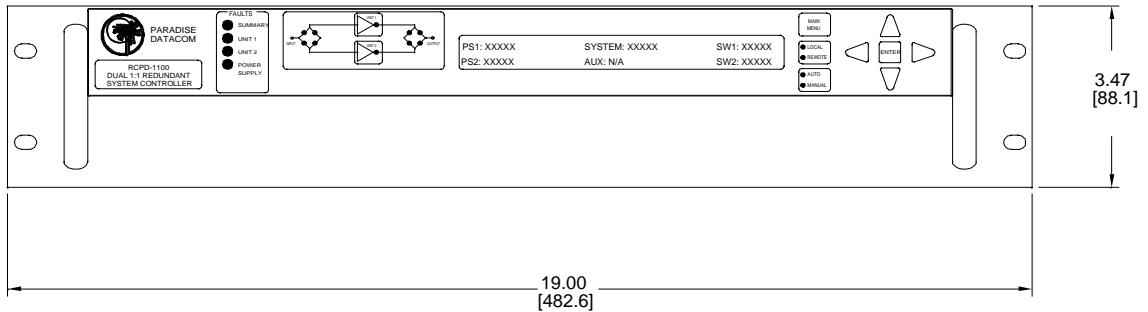
## General LNB Specifications

PARAMETER	C-Band	KU-BAND
Standard Band with Internal Reference ( $\pm 3 * 10^{-6}$ ) Local Oscillator Frequency	3.625 - 4.200 GHz 5.15 GHz	11.70 - 12.20 GHz 10.75 GHz
LNB Option 1 External Reference (IDU Ref stability) Local Oscillator Frequency	3.625 - 4.200 GHz 5.15 GHz	11.70 - 12.20 GHz 10.75 GHz
LNB Option 2 with Internal Reference ( $\pm 3 * 10^{-6}$ ) Local Oscillator Frequency		10.95 - 11.45 GHz 10.0 GHz
LNB Option 3 with Internal Reference ( $\pm 3 * 10^{-6}$ ) Local Oscillator Frequency		11.2 - 11.7 GHz 10.25 GHz
LNB Option 4 with Internal Reference ( $\pm 3 * 10^{-6}$ ) Local Oscillator Frequency		12.25 - 12.75 GHz 11.30 GHz
IF Output Frequency	950-1525 MHz	950-1450 MHz
Input Waveguide/Flange	WR-229 Grooved	WR-75 Grooved
RX Noise Figure (typical)	25 K	65 K
LNB Conversion Gain	55-60 dB	55-60 dB
Gain Flatness (any 40 MHz band)	± 0.5 dB	± 0.5 dB
Output Power, P1dB	3 dBm	0 dBm
Input / Output VSWR	2.2:1	2.2:1
Output Third Order Intercept	+13 dBm	+10 dBm
Spurious	-50 dBc	-50 dBc
Typical Phase Noise		
100 Hz	-60 dBc /Hz	-57 dBc /Hz
1 KHz	-70 dBc/Hz	-67 dBc/Hz
10 KHz	-80 dBc/Hz	-80 dBc/Hz
100 KHz	-90 dBc/Hz	-90 dBc/Hz
Input Power, +12 to +15 VDC	500 mA max	500 mA max

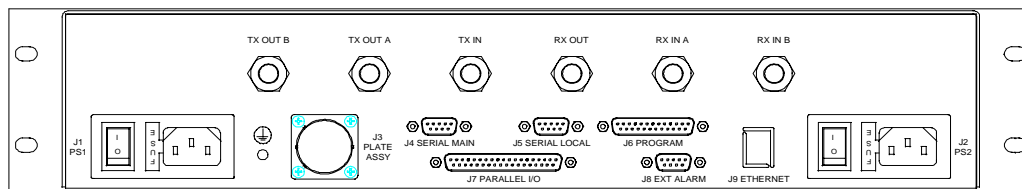


## RCPD-1100 Dual Redundant Controller

### Front Panel



### Rear Panel



### Features:

- Menu Driven LCD Display for user friendly monitor and control
- Front Panel Display of Signal Path for intuitive operation
- Parallel I/O; Form C Contact Closure Outputs & Opto-Isolated Inputs
- 2 Rack Unit height to maximize cabinet space
- RS-232/485 Serial Interface for Remote M&C
- Optional Ethernet Interface
- Audible alarms
- Redundant Power Supplies
- Field programmable firmware
- Windows™ based remote M&C Software
- +15VDC output for LNB bias
- LNB current monitoring for fault detection