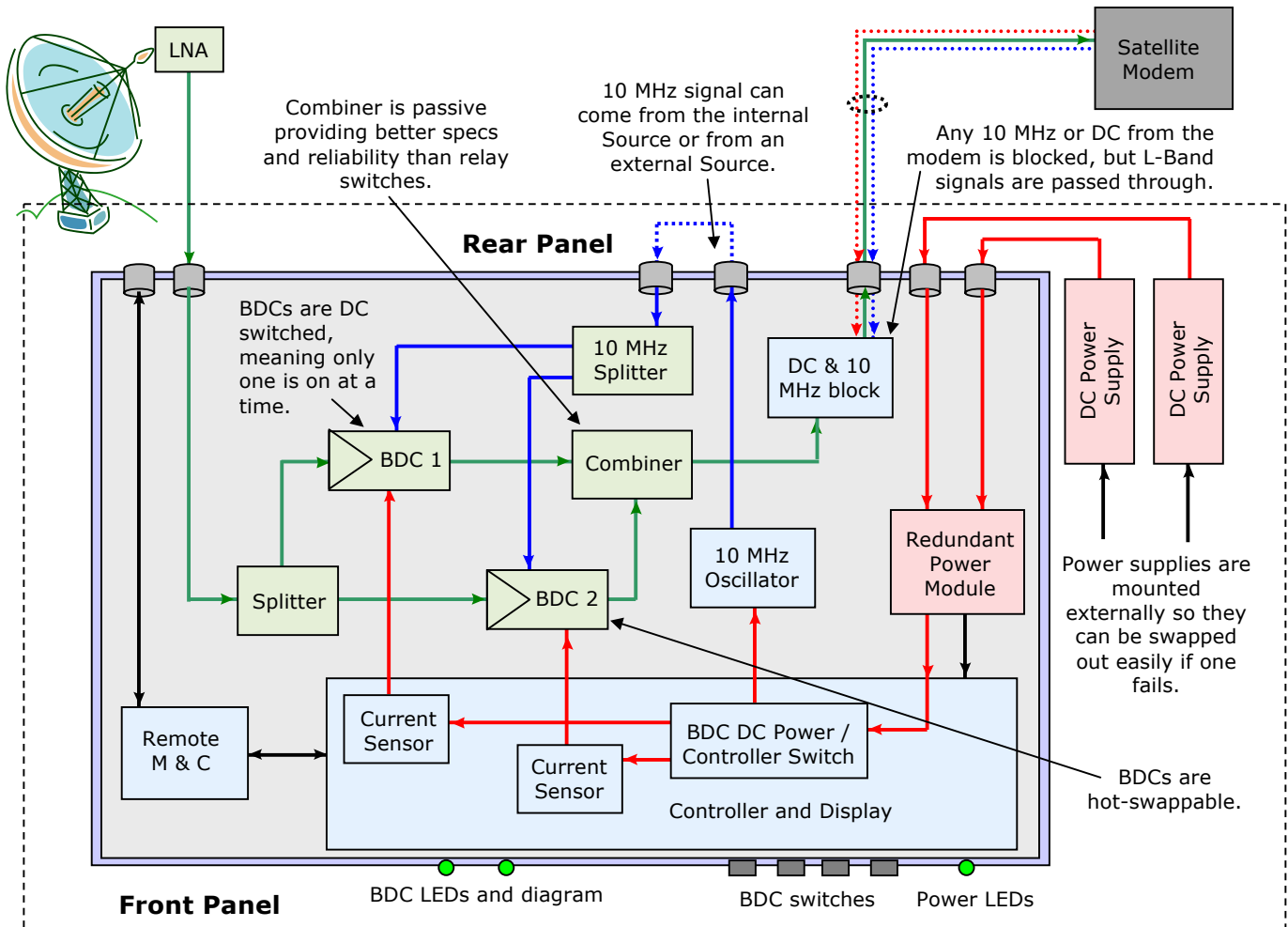


### Rackmount System Diagram



#### **Orbital Features:**

##### **Specifications**

- 2 BDCs in a 1:1 redundancy configuration: Ku External Reference. (C and Ka also available)
- Available in a wide variety of BDC frequency ranges, gains, input and output connectors
- 1 unit high chassis
- BDCs are hot-swappable for convenient replacement
- Remote control and monitoring via Ethernet, RS-232, RS-422 or RS-485 connection
- Power supplies are mounted outside of chassis for easy service or replacement.

##### **Functional**

- Front panel monitor and control (Remote monitor and control as well)
- Internal 10 MHz source (leave jumper in) or use an external 10 MHz source (take jumper out)
- Global power supplies for use anywhere in the world

##### **Differences over conventional models**

- BDCs are switched by using DC to turn each one on or off. Conventional models have both BDCs on at all times. This adds RF & IF noise and transients. It also means that the added heat would effect the overall MTBF and both BDCs will statistically last the same amount of time. If only one BDC is on at a time, there will be less heat generated and the BDCs will last longer. Because they are externally referenced, the BDCs will turn on exactly on frequency.
- Because the BDCs are switched by having only one on at a time, the output switching relay can be a simple combiner. This improves the specs and reliability of the system as a combiner is a passive device and less expensive.

# RRMB1:1-KuXIR: Ku Redundant BDC Rackmount System Specs



## ELECTRICAL

### INPUT

Frequency: Various - see Orbital BDC5400X brochure  
 Bandwidth: Various - see Orbital BDC5400X brochure  
 Noise Figure: 7 dB typical  
 Ripple:  $\pm 0.5$  dB max / 27 MHz segment  
 Input VSWR: 1.5 : 1 typical

### OUTPUT

Bandpass: Various - see Orbital BDC5400X brochure  
 Output VSWR: 1.5 : 1 typical  
 Gain: 0 dB to 40 dB fixed (set at time of order)  
 1 dB Compression: +7 dBm minimum  
 3<sup>rd</sup> Order Intercept: +17 dBm minimum  
 10 MHz output: +7 dBm  
 10 MHz Stability:  $\pm 1.5 \times 10^{-7}$ , 0 to 40 °C

### POWER

Voltage: 90 - 264 VAC  
 Frequency: 47 - 63 Hz  
 Filtering: Transient, over and reverse voltage protected

## MECHANICAL

Weight: TBD  
 Overall Dimensions: 19" x 1.75" x 20" maximum  
 Connectors (rear panel):  
 RF: SMA, N or F female  
 L-band: SMA, N or F female

## ENVIRONMENTAL

Operating Temperature: 0 to +55 degrees Celsius  
 Relative Humidity: Up to 95% non-condensing

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## General Description:

The 1RU-19" redundant BDC assembly converts up to 1.1 GHz of RF input bandwidth in the 10.70 to 12.75 GHz Ku band down to 950-2050 MHz of L-band output. Select the BDCs that match your frequency plan from the models listed on the website.

BDC redundancy is automatic (current sensing) or manually selected. Power supply redundancy is automatic. Remote M&C is a standard option.

## Orbital Design:

This unique design does not use relay switching in the signal path. The RF input is split and fed to each BDC, and the IF output of each BDC is combined. This architecture enhances reliability eliminating relay contact corrosion, tilt, vibration, noise, intermittent switching and gain variation.

Each BDC is then DC switched to select the active device, with the LO instantly on frequency. The standby device is powered down to eliminate RF and IF noise, LO and VCO interference, and transients.

This redundant architecture yields a more stable and reliable conversion process.

This chassis has its own 10 MHz source.

## External Power supplies:

Power supplies, historically, have the lowest MTBF of the components in a system. Our system uses external power supplies.

Faulty power supplies can be replaced without opening the chassis or shutting down the equipment. Having them external allows them to dissipate heat better and not heat up the chassis.

The power supplies need to be 24VDC, with a minimum current rating of 1.2 Amps. If one fails, the system switches to the other power supply and alerts the operator via the front panel and the remote M&C. This gives the customer time to replace the faulty power supply without any down time or without having to open the rackmounted chassis.

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