

1:2 Ku-Band Redundant Block Downconverter Systems

Introduction

The VertexRSI BRK-1201 Series Ku-Band Redundant Block Downconverter (BDC) Systems contain three converters in a 1:2 redundant configuration, including automatic switchover logic, redundant power supplies, and redundant AC line inputs. The systems are designed for installation at satellite earth stations in standard 19-inch EIA equipment racks. The systems are designed to house VertexRSI BDC-12000 Series Ku-band block downconverters.

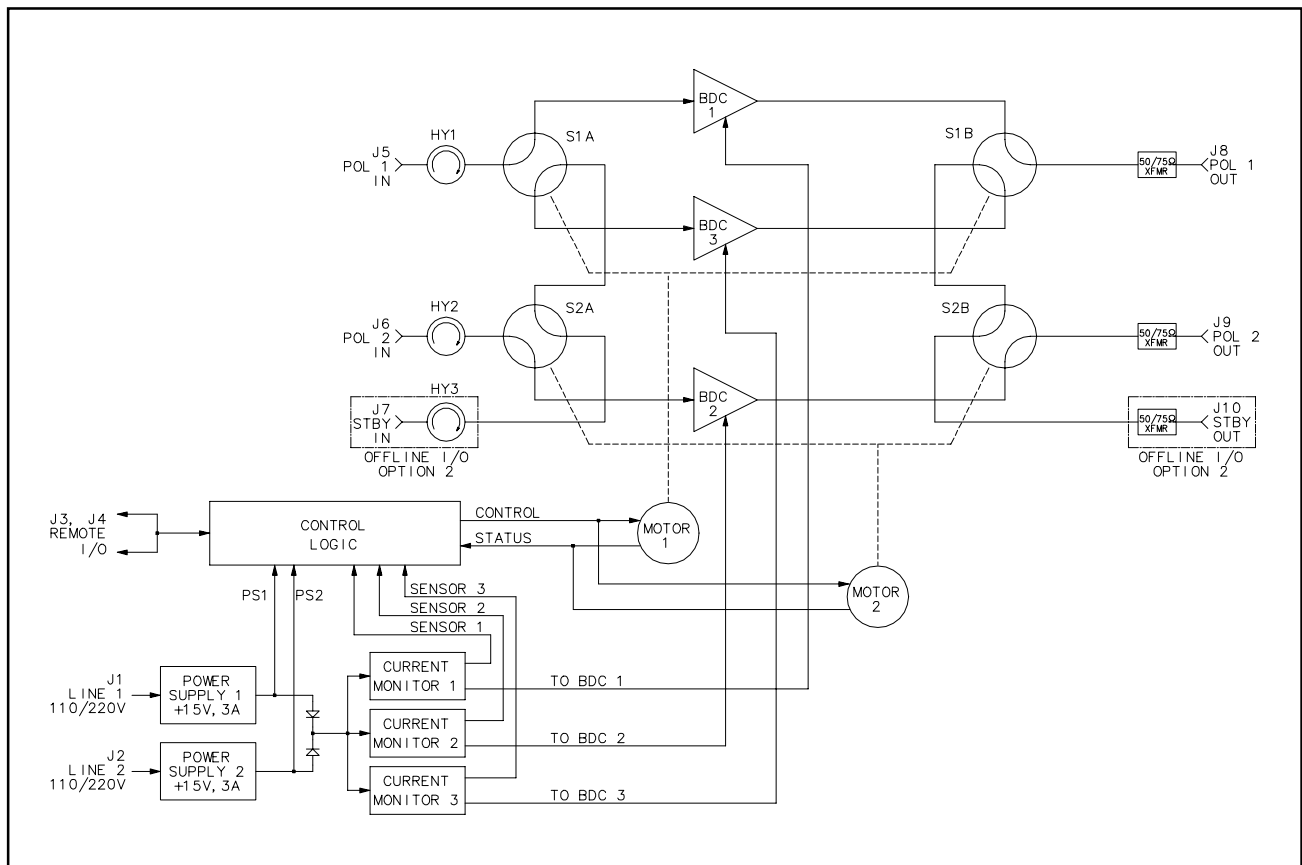
Features

- Standard 19" rack panel, 3½" high
- Dual redundant power supplies
- Worldwide AC input capability
- Monitors converter bias currents to detect faults
- Manual or automatic operation
- Priority is selectable to either Pol1 or Pol2
- Manual override switch control knob on rear panel

Options

- Offline I/O
- Remote panel

Block Diagram



Operating Modes

- **Automatic Mode**

In Automatic mode, if a failure is detected in an on-line converter, the standby converter is switched on-line; switchover is accomplished in 100 milliseconds. In case of failure of both on-line converters, priority is selectable to either Pol 1 or Pol 2. The unit will not switch to a defective converter.

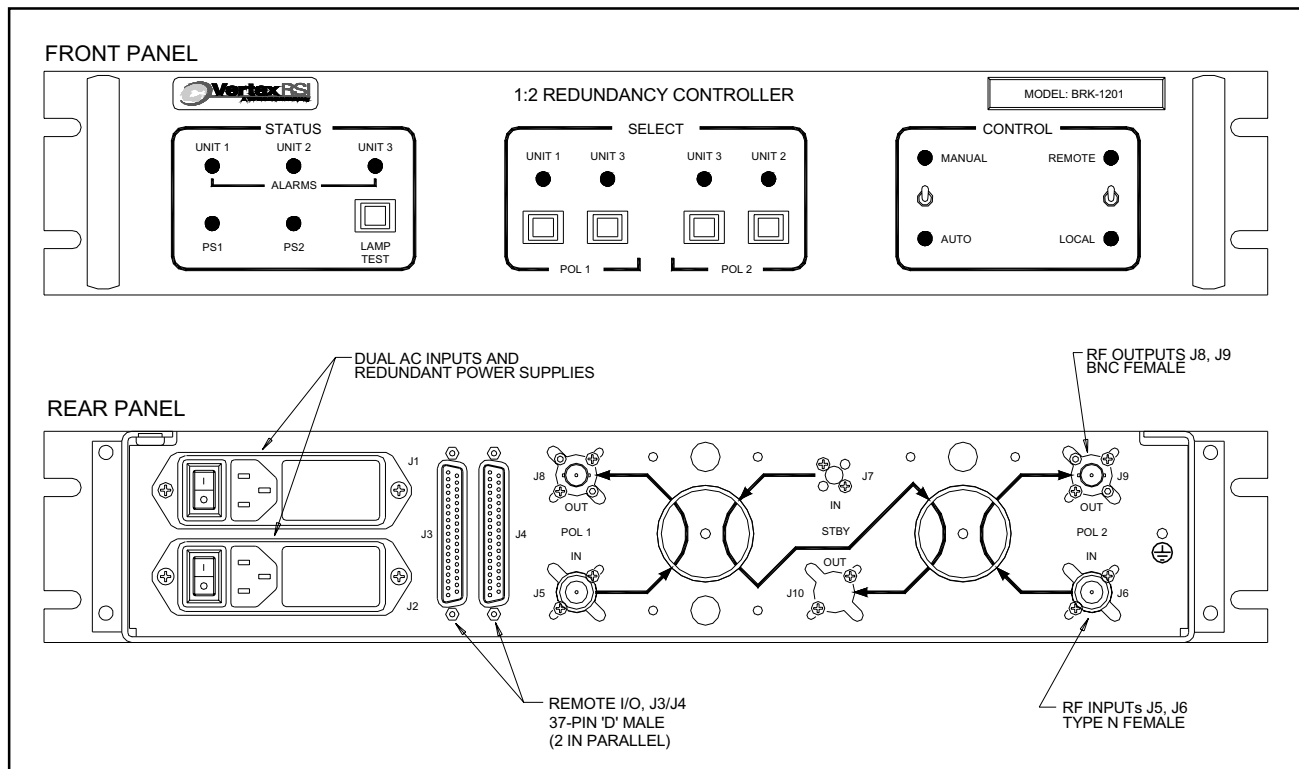
- **Manual Mode**

The converters can also be manually switched from the front panel or remotely. In Manual mode, automatic switching will not occur upon fault detection, although the monitor and alarm circuits still function.

Local or Remote Control

The system includes provision for remote status monitoring and operation. Typical uses are for sending status information to a centralized monitor and control system or for remotely controlling the system from a nearby building. All of the Local front panel features can be remotely controlled and monitored (except for the Remote/Local switch). In Remote mode, the front panel switches and pushbuttons are inoperative, but the indicators continue to reflect the current operating state of the system. Remote status outputs are Form 'C' dry relay contacts capable of switching up to 100 Vdc at 0.5 A. Remote control inputs are optoisolator coupled for noise and common mode ground loop rejection.

Front and Rear Panels



System Specifications *

BRK-1201 Series

Parameter	Notes	Min	Nom/Typ†	Max	Units
Configuration		1:2, One standby block downconverter for two main block downconverters			
Input Frequency Range	BDC-12000F	10.70		11.75	GHz
	BDC-12000B	10.90		11.70	GHz
	BDC-12000J	11.70		12.75	GHz
	BDC-12000C	12.20		13.00	GHz
Output Frequency Range	BDC-12000F	950		2000	MHz
	BDC-12000B	950		1750	MHz
	BDC-12000J	950		2000	MHz
	BDC-12000C	950		1750	MHz
System Gain	BDC-12000x, Standard	10	12		dB
	BDC-12000x w/ Option 2	20	22		dB
Gain Flatness	Full band		±1.0	±1.5	dB
Noise Figure	At +23 °C		14	16	dB
Power Output	At 1 dB compression	+8	+10		dBm
Third Order Intercept	Output, OIP ₃	+18	+20		dBm
Local Oscillator Frequency, Internal to BDC	BDC-12000F		9.75		GHz
	BDC-12000B		9.95		GHz
	BDC-12000J		10.75		GHz
	BDC-12000C		11.25		GHz
Local Oscillator Stability	Over temperature		±12	±20	kHz
Phase Noise	@ 100 Hz offset			-60	dBc/Hz
	@ 1 kHz offset			-70	dBc/Hz
	@ 10 kHz offset			-80	dBc/Hz
	@ 100 kHz offset			-90	dBc/Hz
VSWR	Input (50 ohms)		1.20	1.25	:1
	Output (75 ohms)		1.5	2.0	:1
Connectors	RF input		Type N Female		
	RF output		Type BNC Female (75 ohms)		
	Remote I/O		37-pin D Male (2 in parallel)		
Operating Modes			Manual or Automatic		
Alarm Method			BDC phase lock/bias current. Alarm is generated if current goes outside of current window.		
Window Width	Jumper selectable		±5 mA to ±25 mA in 5 mA steps		
Remote I/O	Form 'C' contacts		100 Vdc/250 mA		
	Control inputs		Contact closure to ground; withstand 15 V, sink 10 mA		
Power Requirements	Voltage	-13%	100/120/220/240	+10%	Vac
	Frequency	47		63	Hz
	Power		30		W
Size			19 x 3.47 x 22		inches
			483 x 88.1 x 559		mm
Temperature Range	Operating	0		+50	°C

* System specifications depend on choice of BDC and various options. Specifications shown are for VertexRSI BDC-12000 series.

† When there is only one value on a line, this column is a nominal value. Otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

Part Number/Ordering Information

BRK-1201-

Assigned by factory
at time of order.

BDC Model Number: BDC-12000
(See BDC-12000 Series specification sheet.)

Option 2: Offline I/O
Option 5: Remote panel

OTHER VertexRSI PRODUCTS

- Low Noise Amplifiers and LNA Systems
- Solid-State Power Amplifiers and SSPA Systems
- General Purpose Converters
- Satellite Communications Equipment
- Custom Subsystems



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Specifications are subject to change at VertexRSI's discretion.