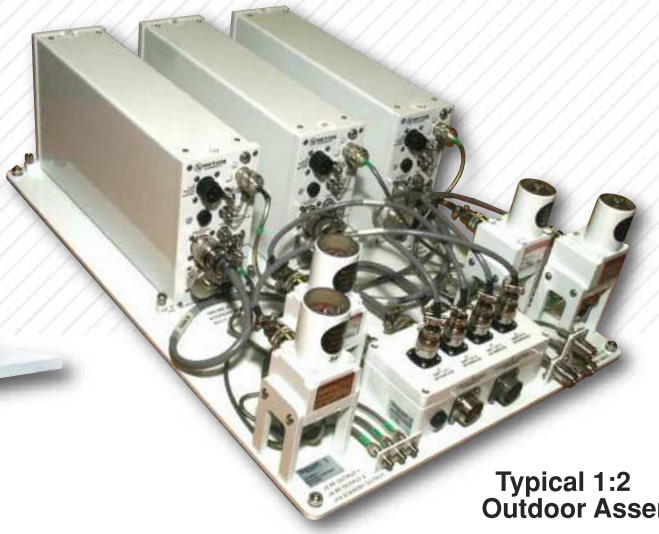
1:1 and 1:2 Redundant Block Converter Systems

Typical 1:1 Outdoor Assembly



Typical 1:2
Outdoor Assembly

Indoor Controller

Completely integrated 1:1 or 1:2 redundant block converter assemblies provide continuous RF operation without loss of signal on a completely automated basis.

The redundant assembly is a weather resistant, antenna mount, single plate assembly, completely integrated with controller interface, switching elements and block converters. The redundant assemblies are available to cover all SATCOM receive and transmit bands; C, X, Ku, DBS, K and Ka - commercial and military bands using the WS series of high-performance block converters (see datasheet D-327 for the block converter specifications).

The control and monitoring of the converters is provided by a rack mounted local control switch over unit. The controller is based on the NSU Series (see datasheet D-323) and is included with the redundant converter plate assembly. Interface cables connecting the rack mounted controller to the antenna mounted plate assembly are also included. The 1:1 system uses a single cable, while the 1:2 system uses two. Standard cable length is 100 feet (30.5m), with longer cable lengths available in 10 foot (3m) increments as an option. Maximum cable length for a 1:1 system is 250 feet (76.2m). Maximum cable length for a 1:2 system is 328 feet (100m).

Features

- **Automated backup and monitoring of block converters**
- **Coverage for all SATCOM bands**
- **Antenna mount, weather proof**
- **Fault tolerant design**
- **Redundant hot-swappable power supplies on controller**
- **Remote control and status via - 10/100Base-T Ethernet and RS485/RS422**
- **Automatic/manual control**
- **Time stamped event history**
- **Continuous operation during fault repair or maintenance**
- **AC power supply (CE marked)**

Options

- **Input/output signal monitors**
- **Longer length interface cables**

Available Block Up and Downconverters for Redundant Systems

RF Frequency (GHz)	IF Frequency (GHz)	LO Frequency (GHz)	Model Number
Block Upconverter			
5.85–6.425	950–1525	7.375	UPB-WS-6.1-IN*
5.85–6.65	950–1750	4.9	UPB-WS-6.25
6.7–7.1	950–1350	5.75	UPB-WS-6.9
7.9–8.4	950–1450	6.95	UPB-WS-8.15
11.7–12.75	950–2000	10.75	UPB-WS-12.225**
12.75–13.25	950–1450	11.8	UPB-WS-13
13.75–14.5	950–1700	12.8	UPB-WS-14.125
14–14.5	950–1450	13.05	UPB-WS-14.25
17.3–18.4	950–2050	16.35	UPB-WS-17.85**
18.1–18.4	950–1250	17.15	UPB-WS-18.25
Ka-Band			
19.2–20.2	950–1950	18.25	UPB-WS-19.7**
20.2–21.2	1000–2000	19.2	UPB-WS-20.7-1**
25.5–27.0	950–2450	24.55	UPB-WS-26.25-1.5**
27.5–28.0	950–1450	26.55	UPB-WS-27.75
28.0–28.5	950–1450	27.05	UPB-WS-28.25
28.1–28.6	950–1450	27.15	UPB-WS-28.35
28.35–28.6	950–1200	27.4	UPB-WS-28.475
28.5–29.0	950–1450	27.55	UPB-WS-28.75
28.6–29.1	950–1450	27.65	UPB-WS-28.85
28.75–29.35	950–1550	27.8	UPB-WS-29.05
28.8–30.0	950–2150	27.85	UPB-WS-29.4**
29.0–29.5	950–1450	28.05	UPB-WS-29.25
29–30	1000–2000	28.00	UPB-WS-29.5-1**
29.5–30.0	950–1450	29.55	UPB-WS-29.75
30–31	950–1950	29.05	UPB-WS-30.5**
30–31	1000–2000	29.00	UPB-WS-30.5-1**

RF Frequency (GHz)	IF Frequency (GHz)	LO Frequency (GHz)	Model Number
Block Downconverter			
3.4–4.2	950–1750	5.15	DNB-WS-3.8-IN*
3.4–4.2	950–1750	8.85/11.3	DNB-WS-3.8B
3.7–4.2	950–1450	8.55/11.3	DNB-WS-3.95
7.25–7.75	950–1450	6.3	DNB-WS-7.5
10.7–11.7	950–1950	9.75	DNB-WS-11.2**
10.95–11.7	950–1700	10	DNB-WS-11.325
11.2–12	950–1750	10.25	DNB-WS-11.6
11.45–12.25	950–1750	10.5	DNB-WS-11.85
11.7–12.5	950–1750	10.75	DNB-WS-12.1
11.7–12.75	950–2000	10.75	DNB-WS-12.225**
12.2–12.75	950–1500	11.25	DNB-WS-12.475
12.25–12.75	950–1450	11.3	DNB-WS-12.5
Ka-Band			
18.3–18.8	950–1450	17.35	DNB-WS-18.55
18.8–19.3	950–1450	18.85	DNB-WS-19.05
19.7–20.2	950–1450	18.75	DNB-WS-19.95
20.2–21.2	950–1950	19.25	DNB-WS-20.7**
20.2–21.2	1000–2000	19.2	DNB-WS-20.7-1**
25.5–27.0	950–2450	24.55	DNB-WS-26.25-1.5**
27.5–28.0	950–1450	26.55	DNB-WS-27.75
27.6–29.1	950–2450	26.65	DNB-WS-28.35-1.5**
28.0–28.5	950–1450	27.05	DNB-WS-28.25
28.1–28.6	950–1450	27.15	DNB-WS-28.35
28.35–28.6	950–1200	27.4	DNB-WS-28.475
28.5–29.0	950–1450	27.55	DNB-WS-28.75
28.6–29.1	950–1450	27.65	DNB-WS-28.85
28.8–30.0	950–2150	27.85	DNB-WS-29.4**
29.0–29.5	950–1450	28.05	DNB-WS-29.25
29–30	1000–2000	28	DNB-WS-29.5-1*
29.5–30.0	950–1450	29.55	DNB-WS-29.75
30–31	950–1950	29.05	DNB-WS-30.5**
30–31	1000–2000	29	DNB-WS-30.5-1**

Note: All converters must have the Vertical Mount (VM) option configuration
* Model includes frequency inversion
**Wideband IF models; 1 to 1.5 GHz standard and broader bandwidths available

Model Number Configuration

MODEL NUMBER: RB__ __ -WS-

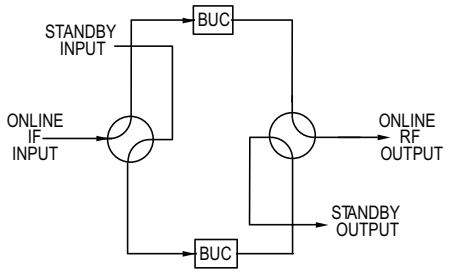
U - Block Upconverter
D - Block Downconverter
1 - 1:1 Redundant System
2 - 1:2 Redundant System
Center Frequency of Converters
(Based on D-327 model numbers)

Examples:
1) RBU1-WS-14.125 is a 1:1 Redundant Block Upconverter System using two BUC's M/N UPB-WS-14.125 (with VM; Vertical Mount Option).
2) RBD2-WS-7.5 is a 1:2 Redundant Block Downconverter System using three BDC's M/N DNB-WS-7.5 (with VM; Vertical Mount Option)

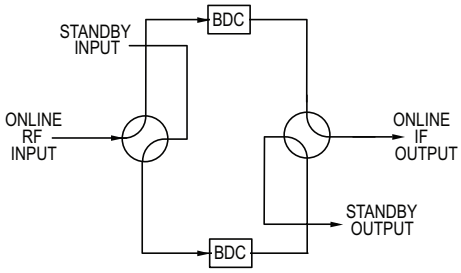
Options

6-[x]. Local control unit to converter/plate assembly cable length, where [x] is the length of the cable in 10 foot increments. 1:1 system maximum length is 250 feet (76.2 m), 1:2 system maximum length is 328 feet (100 m).

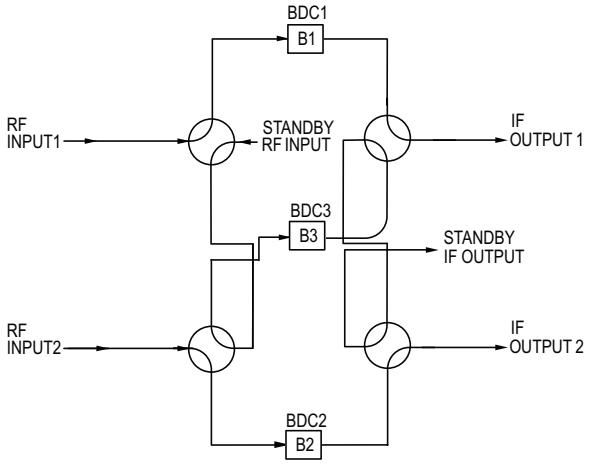
1:1 Redundant BUC System Block Diagram



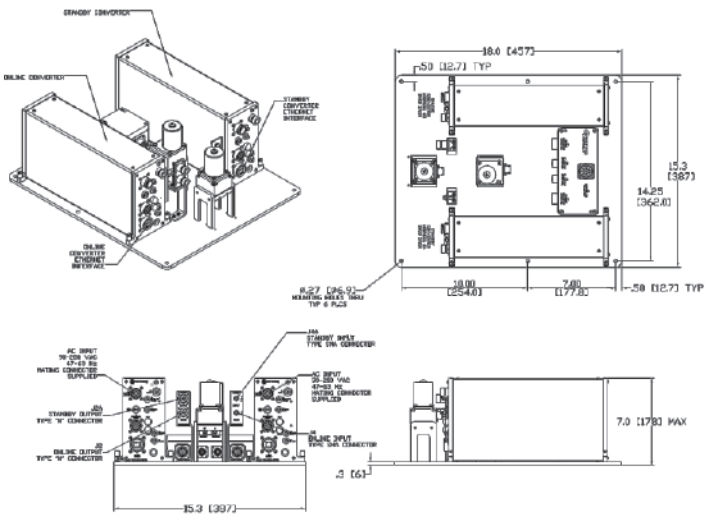
1:1 Redundant BDC System Block Diagram



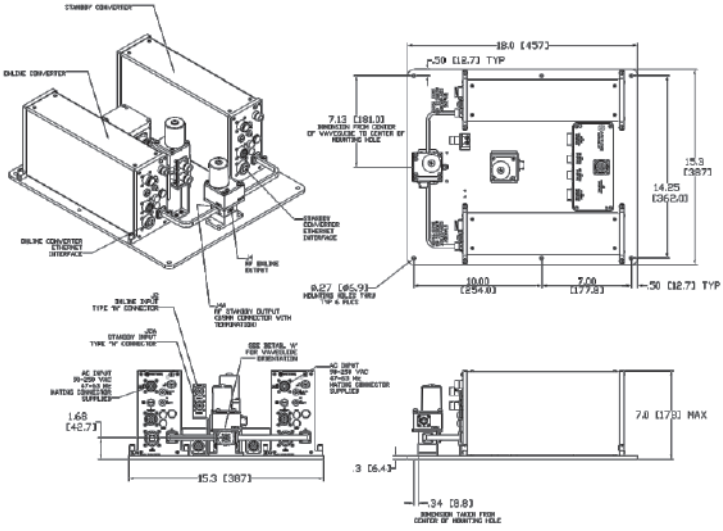
1:2 Redundant BDC System Block Diagram



1:1 Ka-Band BDC Outline Drawing



1:1 Ka-Band BUC Outline Drawing



General Specifications

Primary Power Requirements

Voltage ..... 90–250 VAC
Frequency ..... 47–63 Hz
Power consumption ..... 50 W typical
Note: Converters AC power ..... 25 W typical each

Summary Alarm

Contact closure/open for DC voltage and/or amplifier alarm
Status alarm readout on remote control bus

Physical

Controller

AC input connector IEC-320
Summary alarm interface DEM-9P
Remote interface ..... DEM-9S for RS422/RS485, RJ-45 female for Ethernet
  1:1 plate interface ..... DB-25S to plate interface box
  1:2 plate interfaces ..... DB-25S to converter interface, DB-37P to switch control interface
Weight ..... 20 pounds [9.07 kg] typical
Overall dimensions ..... 19.0" [482.6mm] x 1.75" [44.5mm] panel x 20.0" [508mm] (excluding connectors)

Outdoor Assembly

RF connectors ..... SMA female up to 21.2 GHz, WR-28 for Ka-Band upconverters
IF connectors ..... Type 'N' female
Remote interface ..... RJ-45 female for Ethernet (on converters)
Weight
  1:1 plate ..... 30 pounds [13.60 kg] typical
  1:2 plate ..... 45 pounds [20.41 kg] typical
Overall dimensions
  1:1 plate ..... 15.3" [388.6mm] x 18.0" [457.2mm] x 8.0" [203.2mm] height
  1:2 plate ..... 18.3" [464.8mm] x 24.0" [609.6mm] x 8.0" [203.2mm] height

Environmental

Operating
  Ambient temperature (controller) ..... 0 to 50°C
  Ambient temperature (outdoor assembly) ..... -40 to +60°C
  Relative humidity (controller) ..... Up to 95% at 30°C
  Atmospheric pressure ..... Up to 10,000 feet
Non-operating
  Temperature ..... -50 to +70°C
  Relative humidity (controller) ..... Up to 95% at 30°C
  Atmospheric pressure ..... Up to 40,000 feet
  Shock and vibration ..... Normal handling by commercial carriers

Typical Panel View

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