# BMCR10-D2

## S-BAND REDUNDANT DOWN CONVERTER SYSTEM

- **LOW PHASE NOISE**
- **FINE FREQUENCY STEP**
- **LOW INTERMODULATION DISTORTION**
- **DUAL CONVERSION**
- **BUILT-IN HIGH STABILITY INTERNAL REFERENCE**
- **HIGH RELIABILITY**
- **REMOTE / MANUAL CONTROL**
- **2:1 REDUNDANCY**

This high performance 2:1 redundant down converter system intended for use in professional applications in S band such as satellite earth stations. BMCR10-D2 includes three BMCD48 type high performance down converters and a BUSR10 redundant switch & control unit BMCR10-D2 system can be controlled Ethernet (remote control) via redundant switch. The converters can communicate with BUSR10 via serial RS-232 lines.

**Electrical characteristics:**

| Parameter | Specification |
|---|---|
| Type | Dual Conversion |
| Frequency step size | 1 KHz |
| Frequency sense | Non inversion |
| ***Input Characteristics*** | |
| Input Frequency | 2.0-2.4 GHz |
| Return Loss | 20dB |
| Signal Monitor | -20dBc |
| LO leakage | -80dBm max |
| Input level non damage | +15dBm |
| Impedance | 50 ohms |
| ***Output Characteristics*** | |
| IF | 70+/-20MHz |
| Impedance | 50 ohms |
| Return loss | 26dB |
| Signal Monitor | -20dBc nominal |
| Power Output (1dB compression) | +20dBm min |
| Local leakage | <-100dBm typ., -90dBm max |
| ***Transfer Characteristics*** | |
| Gain | 45dB typ. |
| Gain adjustment | 30dB in 0.2 dB steps |
| Gain Slope | 0.03dB/MHz |
| Gain flatness any 40MHz | +/-0.3dB typ, +/-0.5dB max. |
| Noise Figure | 12dB max |
| Image rejection | -100dBm typ.-80 dBm max. |
| AM/PM Conversion | $0.03^0$/dB max to 0dBm output |
| *Group delay (70+/-18 MHz)* | |
| Linear | 0.03ns/MHz max |
| Parabolic | 0.01ns/$MHz^2$max |
| Ripple | 1 ns peak-peak max |

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| | |
|---|---|
| Amplitude response | +/-0.5dB max . in +/-20MHz BW |
| Inter modulation distortion | 60dBc min (+30dBm IP3 Point) |
| *Spurious Output* | |
| Signal Related | 65dBc up to 0dBm output |
| Signal Independent | -75dBm max |
| *Phase Noise (dB/Hz)* | |
| 10 Hz offset | -65 typ., -60 max. |
| 100Hz | -84 typ., -78 max. |
| 1 KHz | -91 typ., -88 max. |
| 10 KHz | -98 typ., -96 max. |
| Ext reference | 10MHz automatic selection and changeover, -3 to +6dBm typ. |
| Frequency Stability | $+/-5x10^{-9}$, 0 to 50 deg. C, $1x10^{-9}$/day typ. |
| Voltage | 90-250V AC, 47-63Hz, 70W typ. |
| Remote Control | Ethernet/TCP-IP M&C port (via redundant switch) |
| Redundancy | 1:2 redundant controller ( internal RS-232 controlling) |
| Dimension | 19 inch rack mountable |
| *Environmental* | |
| Operational | |
| Ambient Temperature | 0 to 50°C |
| Relative Humidity | Up to 95% at 30°C |
| Altitude | Up to 3,000 feet |
| Non-operating | |
| Ambient Temperature | -20 to +70°C |
| Relative Humidity | Up to 95% at 45°C |
| Altitude | Up to 3,000 feet |
| Shock and vibration | Normal handling by commercial carriers |
| Configuration | The redundant converter system consist of 3 BMCD48 S-band down converters (2 independent master and one backup) and one BUSR10-S2 redundant switch. Each units are built in 1U high , 19" rack independently (So complete redundant system is 4U high but 1U spaces are recommended between units for the bypassing of the possible overheating) The switching system contains all the input and output interfaces with necessary cables and suitable connectors, controllers, etc. |
| Operating | Three of BMCD48 S-band down converters are connected in 2:1 redundant configuration by BUSR10 switch unit. One of the converters is the backup (reserve) unit. This configuration is addressed as one switching system. The switch-over of the converters can operate directly by the operator (via LAN or manual) or automatically if the system detects a failure in either master converters Otherwise BMCD48 down converter can operate by oneself without redundant system. |

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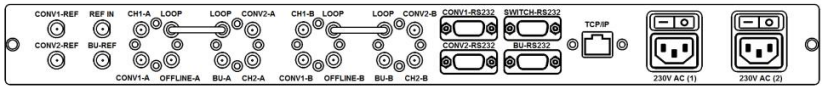


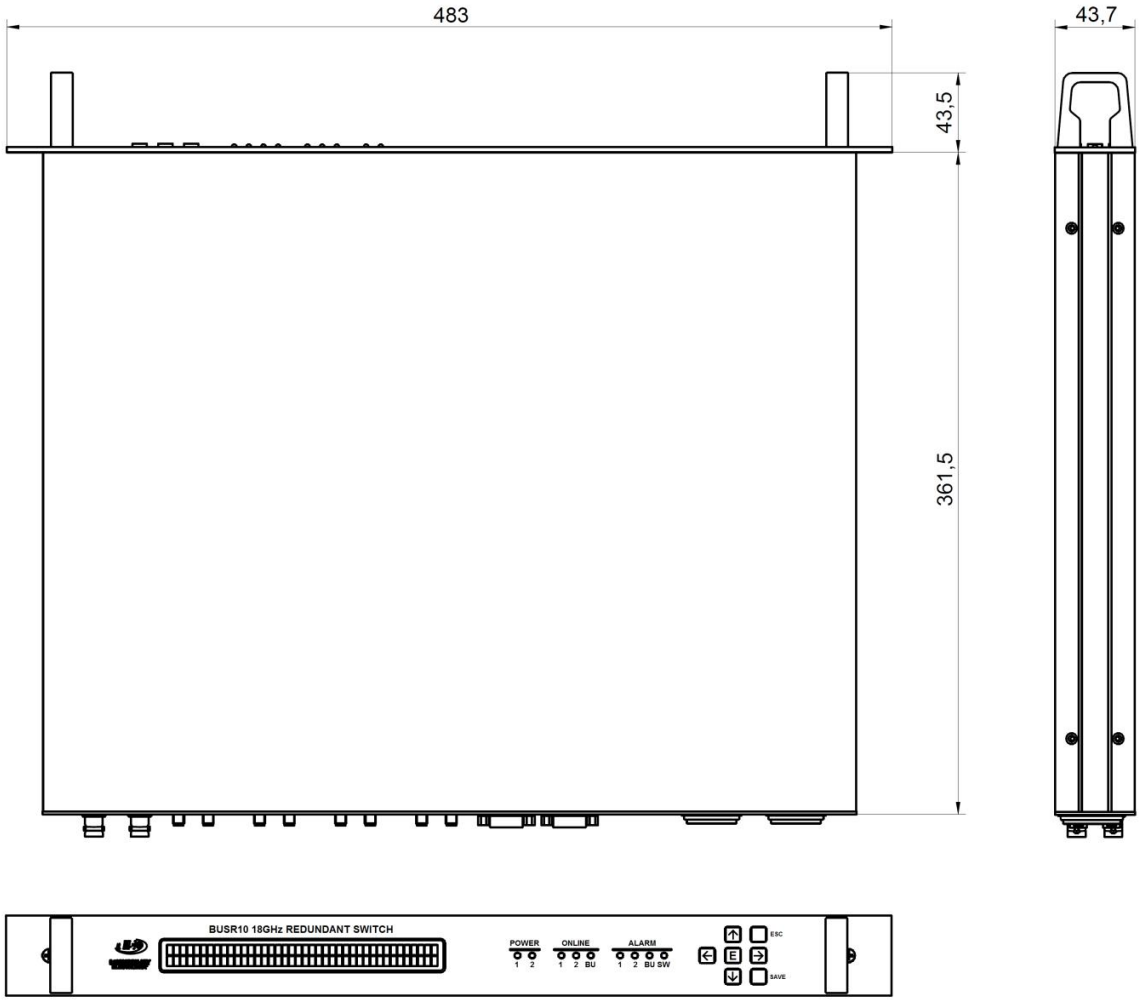


*Outline drawing of BUSR10 redundant switch*

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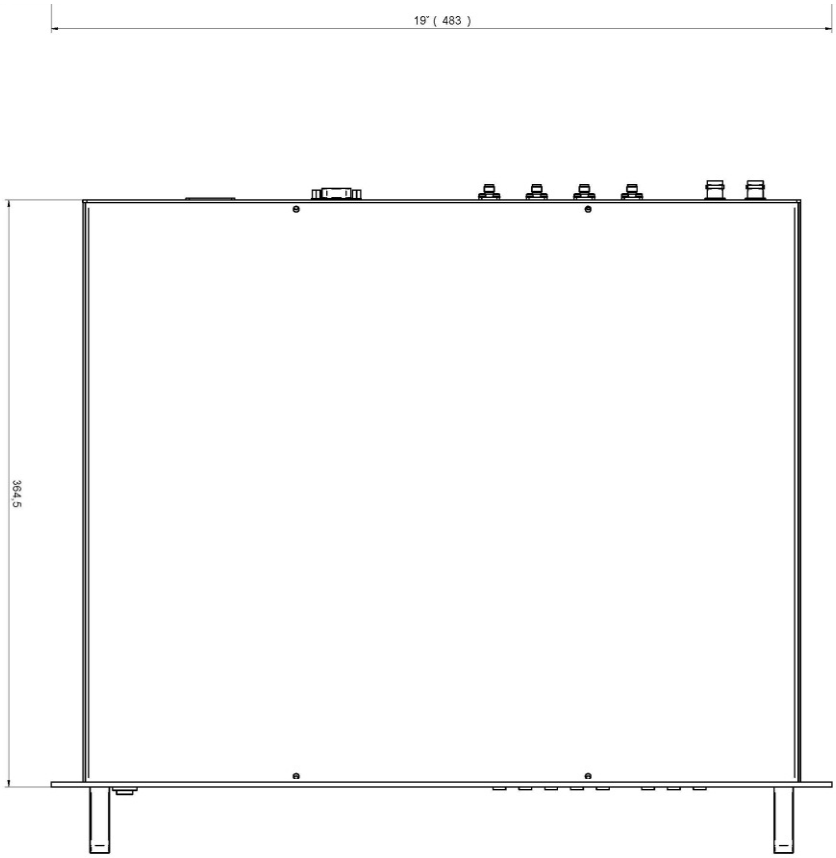


***Outline drawing of BMCD48 down converter***

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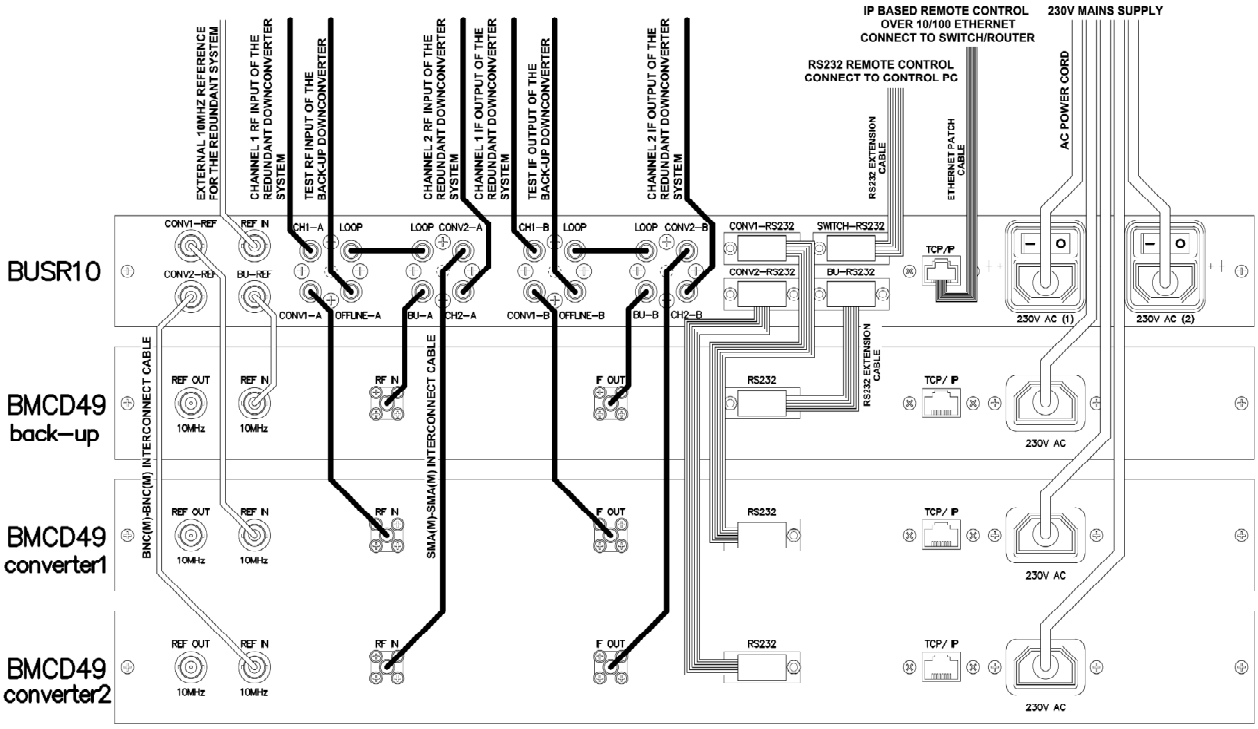


***Cabling diagram of the redundant up or down converter system***

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