

# 2.4 – 2.7 GHz Block Down Converter Card (BDCC)

**COBHAM**

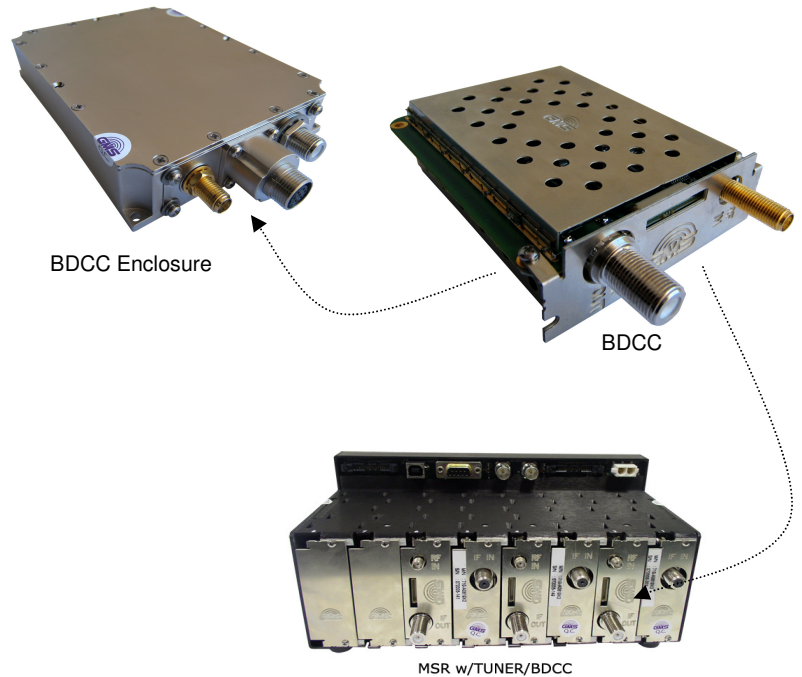
The most important thing we build is trust.

## Applications

- Long Distance A/V Mobile Links
- Airborne Surveillance Links
- Electronic News Gathering (ENG)
- Repeaters
- UAV/UGV Applications

## Key Features

- Input Frequency: 2.4 – 2.7 GHz
- IF Output: 800 - 500 MHz
- First Down-conversion stage for MSR
- Supports COFDM & other Modulations
- High-level Integrated AGC
- Drives 300 feet of RG-59 Coax Cable



GMS' 2.4 – 2.7 GHz "Block Down-Converter Card" (BDCC) was designed as a first down-conversion stage for the Messenger Smart Receiver (MSR). It was designed to support C-OFDM, however, it can be used with a wide variety of analog and digital modulation schemes! It features a high compression level, high-level AGC, programmable IF amplifier, high-linearity, wide spurious-free dynamic range, and low-phase noise. The High-Level AGC system is designed to reduce overload when the input signal approaches the input compression point. For an 8 MHz DVB-T signal, the maximum dynamic range is > 70 dB!



Down Converter in optional enclosure

This card can plug-in to the MSR chassis for portable Rx applications or can be mounted in two optional external weatherproof enclosures. The remote mounting option provides superior system performance when the antenna is mounted away from the receiving system! It outputs an IF signal with programmable gain that can drive up to 300 feet of RG-59 cable. DC power can be supplied either remotely via the IF output's coax cable or locally via the HIROSE connector. The input signal is band selected with a pre-selector filter. The low insertion loss of the input filter and the LNA following the filter establish the 3.5 dB noise figure of the system. A PLL synthesizer with low spurious and phase noise provides the Local Oscillator (LO).

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## Specifications

### General

Type: Single Conversion  
Inversion: Yes

### RF Input (Bandpass Filtered)

Center freq range: 2.4 – 2.7 GHz  
LO leakage: -70 dB  
Input impedance: 50 Ohms  
Input VSWR: <1.5:1  
P1dB<sub>(in)</sub> -17 dBm

### IF Characteristics

LO frequency: 3.2 GHz  
IF Center frequency: 650 MHz  
Frequency range: 800 - 500 MHz  
Impedance: 75 ohms  
VSWR: 2:1 minimum

### Transfer Characteristics

Noise figure: 3.5 dB  
Gain (Prog.): 34 - 25 dB  
Image rejection: 70 dB  
Frequency stability: +/-0.001%  
Spurious outputs: -70 dBc  
@ +/- 20 MHz of IF Freq  
(output level -10dB from P1dB)  
Phase Noise: <0.9 Deg RMS overall

### Power

Voltage: 9 - 18 VDC  
(Reverse Voltage Protection)  
Current: 350 mA @12 VDC

### Environment

Temperature range: -20 to +70 °C  
Humidity: 0 -100% non-condensing

### Mechanical

Card Only:  
Size (less endplate) 3.8" x 2.78" x 0.7"  
9.65 cm x 7 cm x 1.78 cm  
Weight: 0.212 lb, 96 grams  
BDCC Enclosure:  
Size: 4.25" x 3.25" x 0.859"  
10.80 cm x 8.26 cm x 2.18 cm  
Weight: 0.590 lbs, 268 grams

### Connectors

RF input connector: SMA-F  
IF Output: N-F  
Power: HIROSE, SR30-10R-7S  
Pinouts:  
RS-232C: Pin 1 - Tx, Pin 7 - Rx, Pin 2 – GND  
DC Power In: Pin 4  
DC Return: Pins 5 & 6  
Power: (optional enclosure): DB-9M  
Pinouts:  
RS-232C: Pin 9 - Tx, Pin 4 - Rx, Pin 5 – GND  
DC Power In: Pin 1  
DC Return: Pin 3  
Optional Power: Via IF Output Connector  
(+Vcc center pin, GND Shield)

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## Part Number

GMS P/N: BDCCS3UER7Y\_1

GMS P/N: BDCCS3UER7Y\_2

GMS P/N: BDCCS3UER7Y\_3

Card Only (MSR Application)

Module (Chassis)

MNT Plate (Internal Applications)