

MSS-317

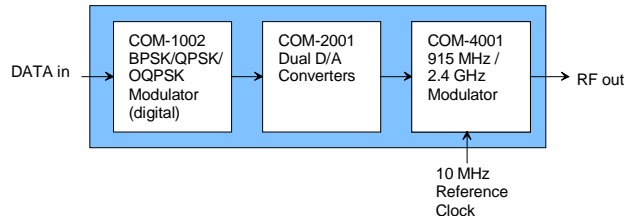
915 MHz / 2.4 GHz BPSK/QPSK/OQPSK Modulator

Key Features

- BPSK/QPSK/OQPSK modulator.
- Programmable data rates up to 20 Mbps (QPSK) and 10 Mbps (BPSK) by steps of at most 3bps.
- Includes raised cosine square root filter with 20%, 25%, or 40% rolloff options.
- Differential and non-differential encoding.
- Internal generation of pseudo-random bit stream and unmodulated carrier for test purposes.
- Built-in channel impairments generation:
 - additive white Gaussian noise
 - frequency offset (Doppler)
- Dual-band [902-928 MHz] or [2.025 - 2.5GHz], quadrature modulator. Software selectable. Designed for use in unlicensed bands.
- Low-noise frequency synthesizer can be tuned over entire range by steps of 100 KHz.
- Output power can be controlled using 10-bit control words. Non-linear scale.
- Selectable internal / external 10 MHz frequency reference for the frequency synthesizer.
- Single 5V DC supply



Block Diagram



The MSS-317 is a custom assembly of three ComBlock modules. Detailed information about the individual modules can be found as follows:

COM-1002:

<http://www.comblock.com/download/com1002.pdf>

COM-2001:

<http://www.comblock.com/download/com2001.pdf>

COM-4001:

<http://www.comblock.com/download/com4001.pdf>

Electrical Interface

Inputs / Outputs

Analog Signals	Definition
EXT_REF_CLK	External 10 MHz frequency reference for frequency synthesis. Square-wave generally yields better phase noise. Sinewave and clipped sinewave are also acceptable inputs. Minimum level 0.5Vpp. Maximum level: 3.3Vpp. SMA connector.
RF_OUT	Modulated RF output. 902 – 928 MHz band or 2.025 – 2.5 GHz band. Maximum output level (for 1Vpp input): - 8 dBm @ 915 MHz typ -12 dBm. @ 2.4 GHz typ -12 dBm. @ 2.5 GHz typ -18 dBm. @ 2.025 GHz typ

	-15 dBm.@ 2.15 GHz typ Impedance: 50 Ohms. SMA connector
Serial Monitoring & Control	DB9 connector. 115 Kbaud/s. 8-bit, no parity, one stop bit. No flow control.

Operations

Monitoring and Control

The MSS-317 is controlled and monitored over a single serial interface from a host PC running Microsoft windows operating system. A graphical user interface (ComBlock Control Center) is provided. For installation instructions, please read <http://www.comblock.com/download/ccchelp.pdf>

Step 1: Install the ComBlock Control Center from the CD.



Step 2: Start the Comblock Control Center from the desktop menu Start | Programs | ComBlock Control Center.



Step 3: Configure the individual ComBlock modules. Each ComBlock module is configured through 8-bit registers. See specifications for details.

Configuration Example

2.49999 Mbit/s, QPSK, internal clock, LFSR-11 2047-bit test sequence, 915 MHz, internal 10 MHz reference, maximum output level (-8 dBm).

COM-1002:

REG0 = 0xFF
REG1 = 0xFF
REG2 = 0x1F
REG3 = 0x00
REG4 = 0x00
REG5 = 0x00
REG6 = 0xFF
REG7 = 0x00
REG8 = 0xD6
REG9 = 0x00

COM-2001: no register to configure

COM-4001:

REG0 = 0xC0
REG1 = 0xCA
REG2 = 0x89
REG3 = 0x36
REG4 = 0x80
REG5 = 0x08
REG6 = 0x08
REG7 = 0x92
REG8 = 0xFF
REG9 = 0x03
REG10 = 0x04

Firmware Upgrades

Occasional firmware upgrades are posted at the ComBlock web site:

www.comblock.com/download.htm . New firmware can be installed into the MSS-317 by using the ComBlock Control Center.

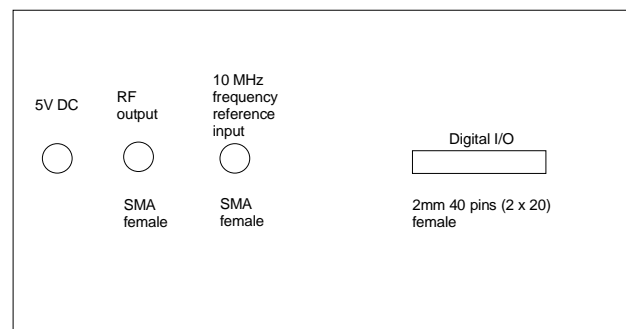
Filter changes

Raised cosine square root filters can be configured with different rolloff factors (sharpness). Changing the filter rolloff requires loading new firmware for the COM-1002 module using the ComBlock Control Center.

External Frequency Reference

In order to precisely set the RF center frequency, an external 10 MHz frequency reference must be provided.

This signal is generally available at the back of spectrum analyzers, for example.

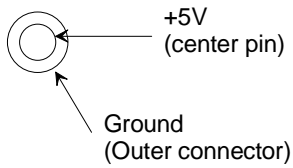


Front Panel

02003301.dxf

Power Supply

5V DC +/- 0.25V



Mechanical

Width :8"

Depth : 5"

Height: 3"

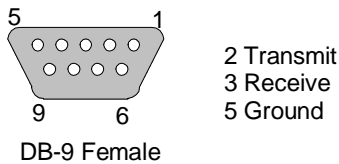
Color: black

Weight: 3 lbs.

Pinout

Serial Link

The DB-9 connector is wired as data circuit terminating equipment (DCE). Connection to a PC is over a straight-through cable. No null modem or gender changer is required.



Ordering Information

MSS-317 915 MHz / 2.4 GHz
BPSK/QPSK/OQPSK Modulator

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