

BlueStamp® Module

BR-SC40A Class1, 2, and 3 Bluetooth® ver2.0

OUTLINE

- **AT HOME. AT WORK. ON THE ROAD. USING BLUETOOTH WIRELESS TECHNOLOGY MEANS TOTAL FREEDOM FROM THE CONSTRAINTS AND CLUTTER OF WIRES IN YOUR LIFE.**
- Wireless communications module certified to *Bluetooth®* ver2.0.
- With ceramic RF chip antenna provided.
- FCC, IC, CE, and *Bluetooth®* certified ISM 2.4GHz band module.
- UART data interface (2-wire or 4-wire with CTS/RTS).
- 13-bit PCM, 8k samples/s, synchronous bidirectional audio interface
- Includes integrated software stack, profiles, and AT modem like commands.
- Embedded *Bluetooth* Stack Profiles Included (*requires no host MCU stack*): SPP, DUN, LAN, Headset, HFP, eSCO, SCO, Audio Gateway, FTP Client/Server, OBEX, OPP – Push/Pull, GAP SDP, RFCOMM, and L2CAP protocols.



FEATURES

- The *BlueStamp* serial radio modems can be configured, commanded, and controlled through simple ASCII strings over the *Bluetooth* RF link or directly through the hardware serial UART.
- Dedicated PCM voice channel for audio applications, and eSCO for exceptional audio clarity
- UART baud rate speeds: 1200bps up to 921.6Kbps, and customized
- +100 meter (330 feet) distance
- Software adjustable transmitter power from short to long range applications
- Low power consumption (*80mA TX, 40mA RX, 1.4mA idle mode, and 30uA deep sleep*)
- Small-form factor 18 Pin DIP radio modem package (0.1" pitch X 0.8" socket width)
- Operating temperature range: -40~+70°C.
- Secure and robust communication link
 - ✓ FHSS (Frequency Hopping Spread Spectrum)
 - ✓ Encryption and 16 alphanumeric Personal Identification Number (PIN)
 - ✓ Error correction schemes for guaranteed packet delivery

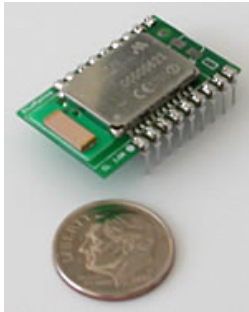
SPECIFICATIONS

| Item | Specifications |
|----------------------------------|--------------------------------------|
| Frequency | 2402 ~ 2480MHz |
| Modulation | FHSS/GFSK |
| Channel intervals | 1MHz |
| Number of channels | 79CH |
| Power supply voltage | 3.3Vdc ± 0.1V and 10mVp-p max. noise |
| Current consumption | 120mA worst case peak |
| Transmission rate (over the air) | 721kbps |
| Receive sensitivity | -83dBm typ. |
| Output level (variable) | 12dBm max. |
| Dimensions | |
| | With Antenna |

BlueStamp® Module

PIN DEFINITIONS

 **BR-SC40A (With Antenna)** make from BR-C40A



Note: SPI is for BlueRadios internal use only.
Part is not 5Vdc tolerant.
Reset is active **low**; pulse >5msec.
PIO Sink Current is 4mA max.
Unused pins can float except for PIO(4), tie to ground if not used or disable via software.

Firmware Options

- **AT Command**
 - Multi-point
 - Point-to-point
 - Repeater
- **HCI or BCSP**
- **Custom**

| BR-SC40A (DIP) <i>BlueStamp</i> | BR-C40A (SMT) <i>BlueRadios</i> | Misc. Info. |
|------------------------------------|------------------------------------|--------------------------------|
| 1. GND | 1. GND | All Connected |
| 2. SPI_MOSI | 2. SPI_MOSI | Reserved |
| NC | 3. PIO[6] | |
| NC | 4. PIO[7] | |
| 3. RESET | 5. RESET | |
| 4. SPI_CLK | 6. SPI_CLK | Reserved |
| 5. PCM_CLK | 7. PCM_CLK | |
| 6. PCM_SYNC | 8. PCM_SYNC | |
| 7. PCM_IN | 9. PCM_IN | |
| 8. PCM_OUT | 10. PCM_OUT | |
| 9. VDD (3.3Vdc) | 11. VDD (3.3Vdc) | ±0.1Vdc, max. 10mVpp ripple |
| GND | 12. GND | |
| 10. UART_RX | 13. UART_RX | 0-3.3Vdc logic levels |
| 11. UART_TX | 14. UART_TX | 0-3.3Vdc logic levels |
| 12. UART_RTS | 15. UART_RTS | 0-3.3Vdc logic levels |
| 13. UART_CTS | 16. UART_CTS | 0-3.3Vdc logic levels |
| NC | 17. Not Used | USB_D+ |
| NC | 18. Not Used | USB_D- |
| 14. PIO[2] | 19. PIO[2] | Bluetooth Connection |
| NC | 20. PIO[3] | |
| 15. PIO[5] | 21. PIO[5] | Radio Status |
| 16. PIO[4] | 22. PIO[4] | Factory Default Reset |
| 17. SPI_CSB | 23. SPI_CSB | Reserved |
| 18. SPI_MISO | 24. SPI_MISO | Reserved |
| GND | 25. GND | |
| NC | 26. NC | |
| 1. | 27. GND | |
| 1. | 28. GND | |
| 1. | 29. GND | |

*For technical details of the products in this page, refer to Sales Dept., BlueRadios, Inc.

BlueStamp® Module

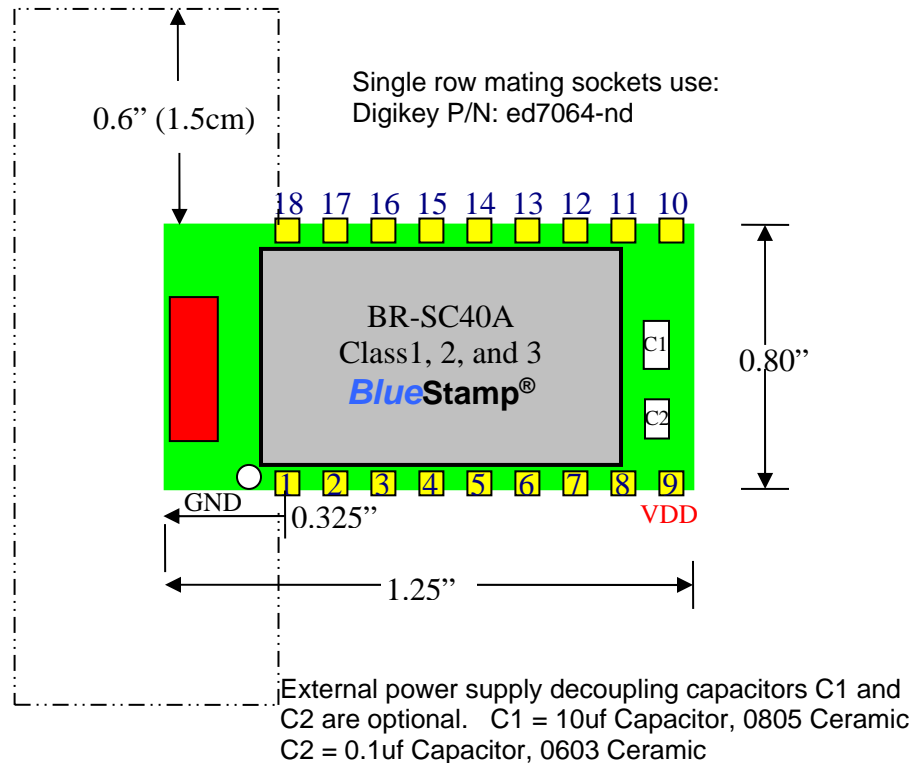
STANDARD PIN DIMENSIONS

● **BR-SC40A (With Antenna)** make from BR-C40A

18 Pin DIP (Through-hole)
0.1" Pitch and 0.8" Wide Socket

The **BlueStamp®** design already includes a RF ground plane.

Note: Keep metallic components, connectors, copper traces, internal layers, and ground planes away from the antenna area in 3D space!



Power-up Sequence

The unit must be reset with terminal 3 "RESET" after turning on the power supply VDD. Reset terminal should be **low** for >5 msec. to cause a reset incase of electrical "brown-out" or poor input supplied VDD. Unit will not initially boot-up reliably if the VDD ramp rate is in milliseconds. Allow 1sec for module to fully reboot.

Please refer to BlueRadios Specification BR-AT_COMMANDS-100 hardware and software interface definition.

BlueStamp® Module

BOARD SCHEMATIC

BR-SC40A (With Antenna) make from BR-C40A

