

BM-70-CDB
Quick Start Guide

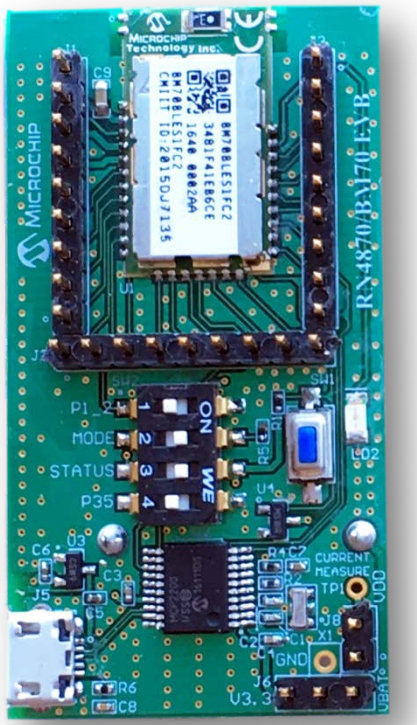
BM-70-CDB Features

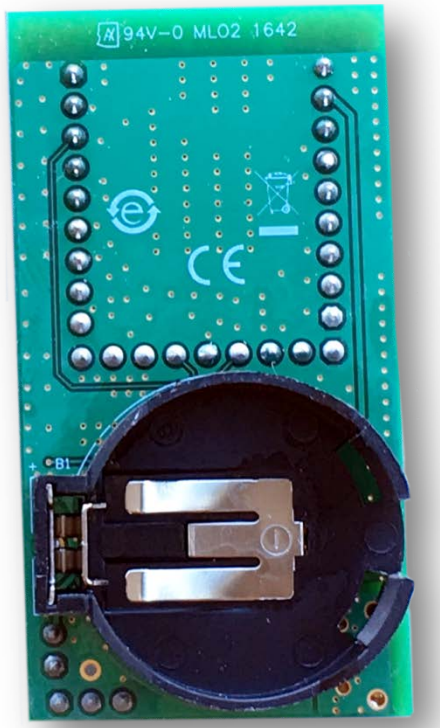
- **BLE 4.2 Demonstrator**
  - BM70 or RN4870 Module with firmware update
  - Includes Sensor Board with Analog and Digital IO
- **Small Form Factor**
  - 5x6 fits in your hand
  - 50% smaller than PICTail
- **Portable and Mobile**
  - Power Options: USB or Coincell CR2450
  - Standalone Operation (Beacon, Script, SDK)
- **Available Now**
  - $39.95 on MD

BM-70-CDB Form Factor

Top

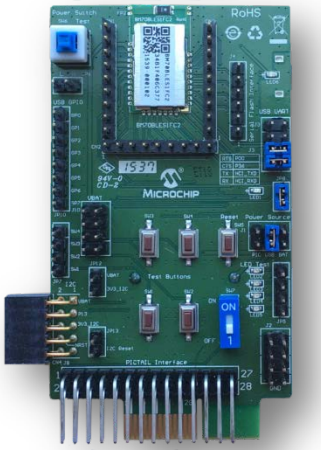
Bottom





58mm

30mm

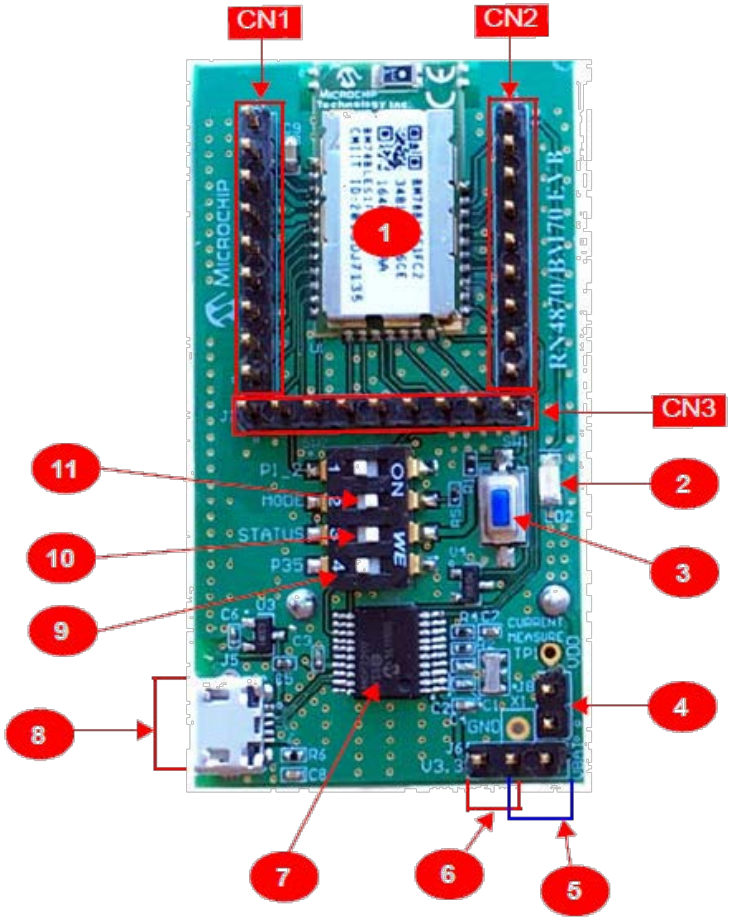




PICtail

CDB

Interface Description

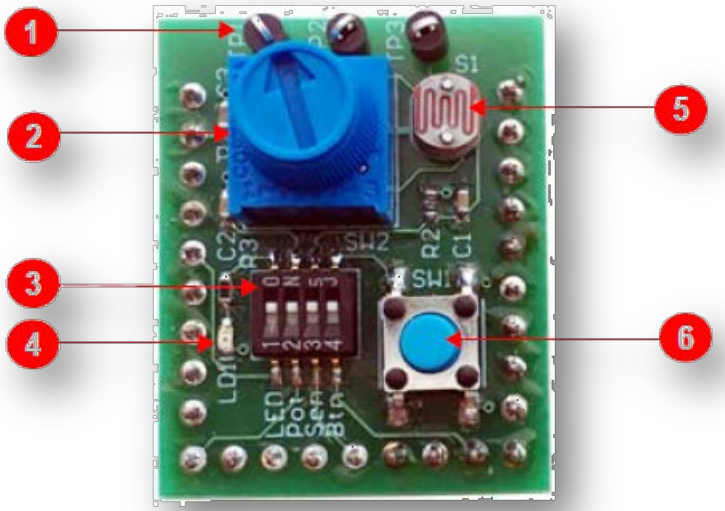


1. BM70BLES1FC2 module (BLE 4.2)
2. Status indicator LED (LD2)
3. Hardware Reset line to BM70 (SW1)
4. Current measurement test point (J8)
5. Select Battery power (J6, close pins 1 and 2)
6. Select USB power (J6, close pins 3 and 2)
7. MCP2200 - USB to UART bridge
8. Micro USB connector
9. DIP switches (SW2)
10. Status LED switch (#3 on SW2)
11. Mode switch (#2 on SW2), BM70 P2_0
    Selects programming or application mode
12. CN1, CN2 and CN3 BM70 header pins
    Used to connect the Sensor Board or as test points.

MCP116 (U4) Power on Reset supervisor and Capacitor (C9) are included on CDB per BM70 data sheet reference design for battery powered applications.

BM-70-CDB Sensor Board

1. Test Point for ADC channels
2. Variable Resistor to drive ADC0 input
3. DIP Switch block to connect or disconnect sensors from the BM70 module
4. LED connected to pin P22
5. Light Sensor to drive ADC1
6. Push Button for PIO2







- Demonstrates BLE GATT Service
- Stand-alone on BM70 or RN4870
- BLESensorAPP on iTunes and Google
- Refer to sensor board support package on RN4870 web page
  (CDB with RN4870 firmware supports RN4870 demos such as BLEsensor GATT service)

Exercise 1

CONNECTING CDB TO SMARTPHONE APP

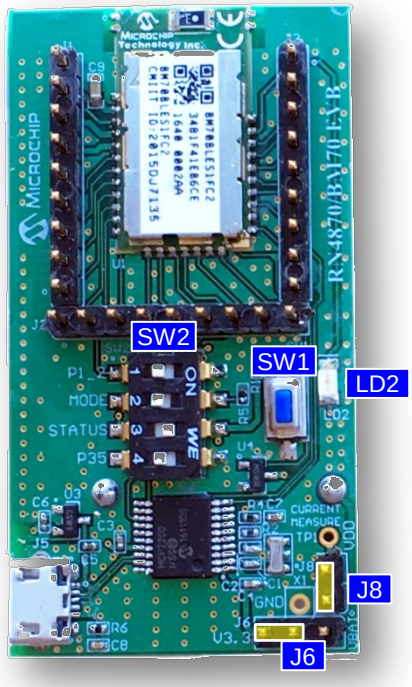
Exercise 1: Requirements

- **Software and Hardware Requirements**
  - BM-70-CDB with BLEDK3 firmware
  - Window PC with USB port, MCP2200 Driver
  - Terminal Emulator (TeraTerm, CoolTerm, etc)
  - SmartData APP on iTunes or Google

Exercise 1: CDB Power Up

To connect the BM70-CDB to a host PC, perform the following steps:

1. Ensure that the BM70-CDB is configured as follows:
   - Pins 2 and 3 on J6 is closed to select USB power option
   - J8 is closed
   - Operating mode switch (Switch 2 on SW2) is in position 2 to enable Application mode.
2. Connect BM70-CDB to the host PC using micro USB cable. Perform the following steps:
   - Verify that the virtual COM port is enumerated on the host PC. If the COM port does not enumerate, the MCP2200 drivers may be missing from the host PC. The drivers can be downloaded from www.microchip.com/MCP2200 web page.
   - Press **Reset** button (SW1) and verify that LD2 is flashing slowly.
3. Start the Terminal Emulator software. In this example, TeraTerm is used. Configure the enumerated COM port as shown in Figure 3-1.



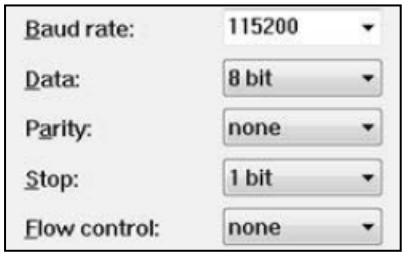


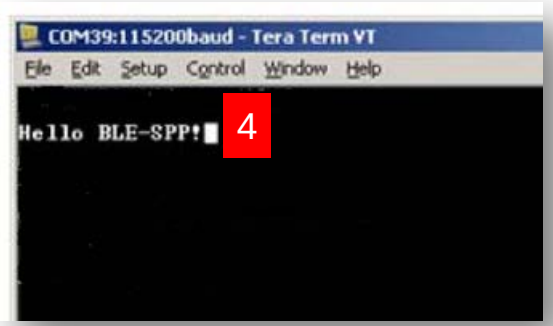
Fig 3-1

Exercise 1: Data Transfer

- Start Terminal Emulator and open connection to CDB COM port
- Launch SmartData APP on SmartPhone.
- Follow the steps below







Exercise 2

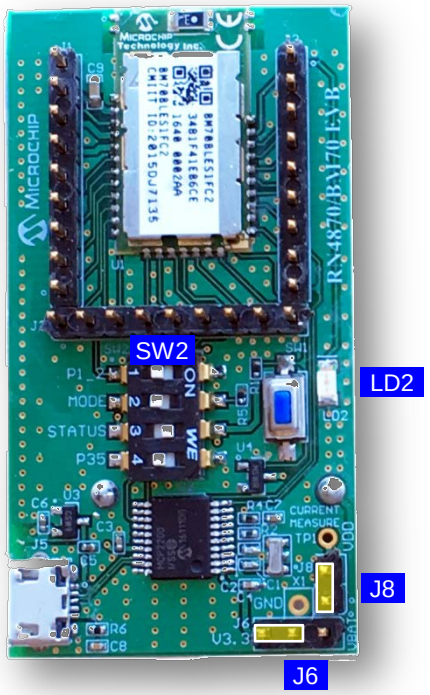
EXPLORING DEVICE INFO GATT SERVICE

Exercise 2: Requirements

- **Software and Hardware Requirements**
  - BM-70-CDB with BLEDK3 firmware
  - Window PC with USB port, MCP2200 Driver
  - SmartDiscover APP on iTunes or Google
  - USB host to power CDB

Exercise 2: CDB Configuration

- Configure CDB as shown below
- Connect to USB power source
- Verify module is operational via flashing status LED (LD2)

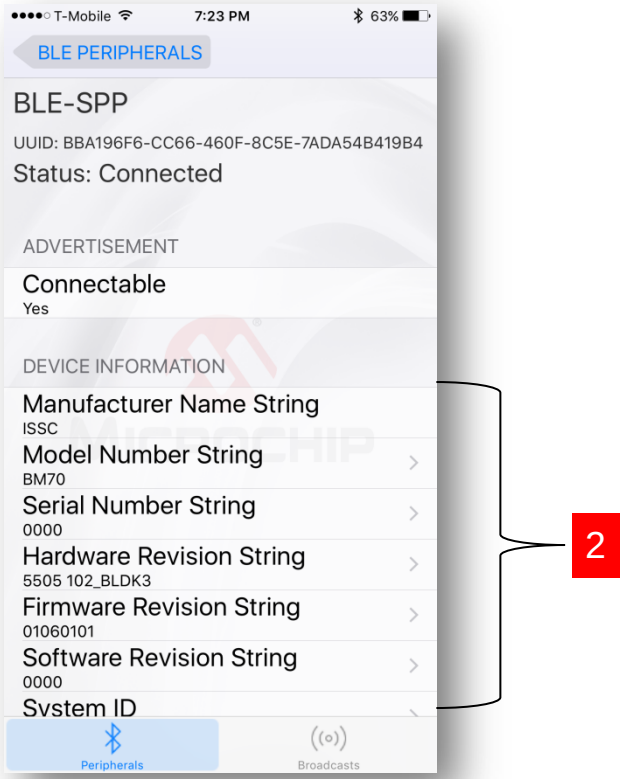


Exercise 2: Connect and Read GATT Service

- **Launch SmartDiscover APP on SmartPhone**

1. **Click on “BLE-SPP” to connect to CDB**
2. **Verify Device Information settings as shown below**



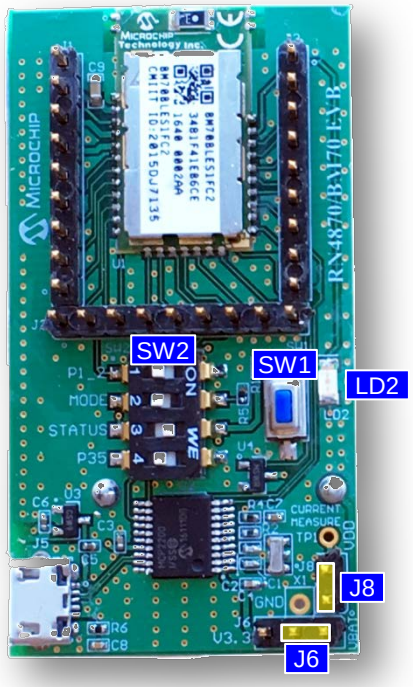


Exercise 3

USING THE CDB WITH COINCELL BATTERY

Exercise 3

- **Install jumper on J8**
- **Remove jumper on J6**
- **Install CR2450 coincell battery**
  - positive (+) up and negative (-) facing the CDB
- **Install jumper on J6 pin 1&2 for battery operation**
- **Verify CDB is operating by observing flashing LED (LD2)**
- **Battery Operating Guidelines**
  - **DO NOT update firmware or UI configuration on battery power!!**
  - Disable (LD2) Status LED to extend battery life. SW2:#3 to off.
  - If standby idle timer is enabled, and module enters sleep after idle period, then wake up using one the following options:
    - Reset Button (SW1)
    - Reconfigure P35 (SW3,#4) as wake up line. On BM70 use the UITool. See BM70 user guide. If RN4870, use ascii commands describe in RN4870 user guide.
    - Reconfigure P24 (SW1 on Sensorboard) as wake up line. On BM70 use the UITool. See BM70 user guide. If RN4870, use Ascii commands described in the RN4870 User Guide.





CDB Resources

- www.microchip.com/BM-70-CDB
  - CDB User Guide
  - CDB Design Files
- www.microchip.com/BM70
  - BM70 User Guide
  - Firmware Images and Tools
- www.microchip.com/RN4870
  - RN4870 User Guide
  - Firmware Images and Tools
  - Sensor Board Support Package