BCGMCU
Quick start guide with the Windows Demo GUI & BCGMCU-D01-PCB
Preparing BCGMCU-D01-PCB

- Required material
  - BCGMCU-D01-PCB
  - USB-UART bridge (such as FTDI TTL-232RG-VSW5V-WE)
  - Soldering tools

- Solder voltage supply 5…9 V to Vin (J1). USB-UART bridge power wire can also be used as long as power supply is over 5V.
- Solder USB UART bridge to the UART-interface pins SERIAL_TX (J2-1). and SERIAL_RX (J2-2), and ground (J2-3).
Windemo GUI

1. Connect your BCGMCU-PCB USB-cable to your PC

2. Start the GUI from BedSensorDemoGUI.bat

3. Select the correct COM port under the USB tab.

4. Select Agree and press Start to connect to sensor
Place the sensor on a bed

1. The sensor should be placed on a bed to view actual measurement results
   - When sensor is not placed on a bed, results typically still indicate a heart rate when sensor experiences considerable acceleration

2. Place sensor on top of mattress, next to pillow, with the PCB arrow pointing in the longitudinal direction of the measurement subject
1. After connecting, BCG data outputs are visualized in the graphs in real time.

2. Pull down menus can be used to select data to show.

### BCG Demo

**Heart Rate [1/min]**

72

**Heart Rate Variability [ms]**

62

Status: Ok signal level
Log and view full BCG data output

1. Data logging can be started from “Tools->Store output data to file”

2. In order to view the full BCG data lines in real time, the GUI can be configured to display these in a separate view
   1. Close GUI, find file etc/demo.properties
   2. Change show.debug.messages=false to show.debug.messages=true
   3. Save file and restart GUI
   4. BCG data is reported in CMD prompt with below format
      timestamp/hr,rr,sv,hrv,fft_indicator,status,b2b1,b2b2,b2b3
View raw acceleration waveform

1. Select “Mode->Data logger (AC)” to display raw acceleration waveform

2. This view can be used when finding the optimal position for the sensor in bed
   - In a good location, the BCG signal waveform is clearly identifiable when the subject remains still (similar to the waveform in the image where two BCG waveforms can be seen)