Biosignalsplux

Biosignalsplux (2nd LF UK)

Biosignalsplux is a set for measuring various biosignals. In our practice, we have the biosignalsplux Explorer kit, which contains in a portable case:

- 4-channel HUB;
- Sensors:
  - **Electromyography (EMG)** - two surface electrodes IN +, IN-
    - Gain: 1000
    - Range: ± 1.5mV (with VCC = 3V)
    - Frequency range: 25-500 Hz
    - Consumption: ~ 1mA
    - Input impedance:> 100GOhm CMRR: 100 dB
  - **Electroencephalography (EEG)** - headband, three electrodes: REF, IN +, IN-; arrangement similar to an ECG
    - Gain: 40000
    - Range: ± 37.5 µV (with VCC = 3V) Frequency band: 0.8-49 Hz
    - Consumption: ~ 3mA
    - Input impedance:> 100 GOhm
    - CMRR: 100 dB
  - **Respiration** (PZT) - piezoelectric respiratory sensor - chest strap, plethysmograph detects% stretching - shrinkage in the range of approx. ± 60%
  - **Electrocardiography (** ECG) - contains three electrodes: REF, IN +, IN- to record a single-lead ECG:
    - Gain: 1000 Range: ± 1.5 mV (VCC = 3V)
    - Frequency band: 0.5-100 Hz
    - Consumption: ~ 1 mA Input impedance:> 100 GOhm
    - CMRR: 100dB
  - Force (FSR)
  - Blood Pressure Reader (BPR)
    - User-friendly upper arm cuff-based blood pressure monitor with plug & play interface for real-time data recording.
    - Datasheet
  - Bluetooth dongle
  - 24 electrodes
  - charger

Theoretical introduction:

See script: Biosignals from the perspective of biophysics

Task:

It is a newly acquired device for which detailed instructions have not yet been developed - and it may never be. This is a bonus (optional) task, the purpose of which is:

1. Get acquainted with the device
2. Design your own exam using available sensors
3. Perform an examination
4. Save the acquired biosignal to disk
5. Describe the measured curves
6. Document the task

Links and Resources:

in: biosignalsplux - more detailed documentation on Wikiverista, including links to primary sources