



# ECG Patch Reader Mobile App

## User Guide for Professional Users

### 1. Introduction

The **ECG Patch Reader mobile application** is part of the **Biocom professional HRV Systems**. The application runs on an Android smartphone and serves as a communication bridge between the **Biocom 6500 wearable Bluetooth ECG sensor** and the **Biocom HRV software** (Heart Rhythm Scanner PE or HRV Live) running on a Windows PC.

The mobile app performs the following functions:

- Detects and connects to nearby **Biocom 6500 ECG sensors** via Bluetooth.
- Receives ECG data from the selected sensor.
- Establishes a **TCP link** with the Windows PC running Biocom HRV software.
- Streams ECG data in real time from the sensor to the PC.

The ECG Patch Reader app is **preinstalled on the Android phone supplied with the Biocom professional HRV systems** and does not require user installation.

### 2. System Components

The ECG Patch Reader app operates as part of the following system:

- **Biocom 6500 Wearable ECG Sensor** (Bluetooth ECG recorder)
- **Android smartphone** with ECG Patch Reader app installed
- **Windows PC** running Biocom HRV software
- **Network connection** between the smartphone and the PC

The smartphone receives ECG data from the sensor and transmits the data to the PC through a TCP connection.

The TCP connection can be established using either:

- **Wi-Fi network connection, or**

- **USB connection**

The USB option is useful in environments where wireless networking is restricted or unavailable.

### 3. Launching the Application

The **ECG Patch Reader** application is preinstalled on the Android smartphone supplied with the Biocom HRV systems.

To launch the application:



1. Turn on the smartphone.
2. Locate the **ECG Patch Reader** icon on the home screen or in the application list.
3. Tap the icon to start the application.

When the application starts, the **main screen** appears. From this screen, the user can:

- Select a **Biocom 6500 ECG sensor**
- Start or stop **ECG recording**
- Check **live ECG signal quality**
- Establish a **TCP connection** to the Windows PC
- Start or stop **data streaming**

Ensure that:

- **Bluetooth is enabled** on the smartphone.
- The **Biocom 6500 sensor is powered on**.
- The **Windows PC running Biocom HRV software is ready** if ECG data is to be streamed.

### 4. Main Screen Overview

The **main screen** provides an overview of the sensor connection and PC link status.

Two primary indicators are displayed.

### 3.1. Sensor Status Indicator

This indicator shows:

- The **selected sensor name** (model name and unique ID)
- The **Bluetooth connection state**

Typical states include:

- Connected
- Disconnected
- Searching

### 3.2. PC Link Indicator

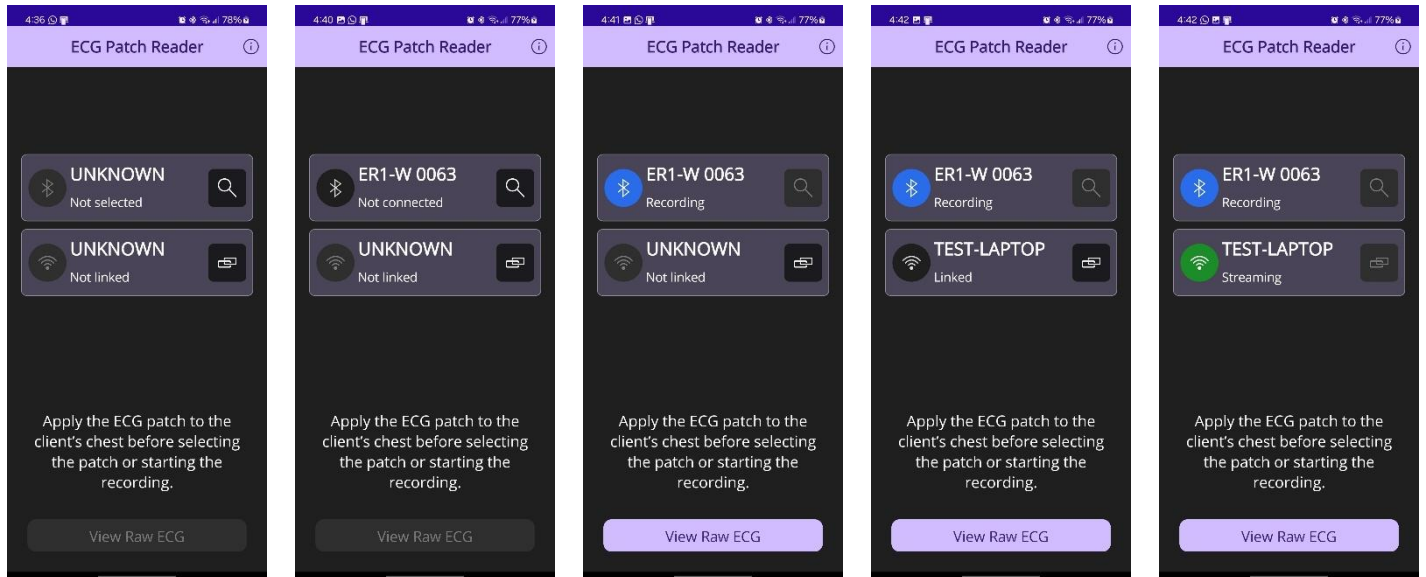
This indicator shows the TCP link status with the Windows PC:

- **PC name**
- **Link state**

Typical states include:

- Linked
- Not linked
- Streaming

Below are the typical sensor connection and TCP link states:



- Sensor not selected
- TCP not linked

- Sensor selected
- TCP not linked

- Recording ECG
- TCP not linked

- Recording ECG
- TCP linked to PC

- Recording ECG
- Streaming to PC

## 4. Selecting a Biocom 6500 Sensor



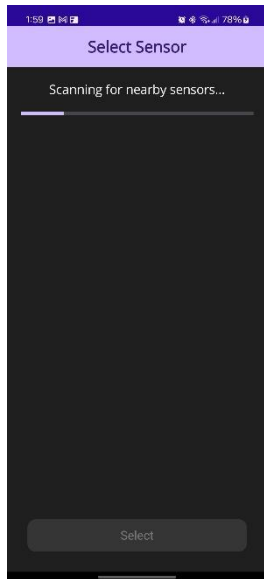
1. Tap the **Sensor Selection** button on the main screen.
2. The application scans for nearby **Biocom 6500 sensors**.
3. A list of detected sensors is displayed.
4. Select the desired sensor from the list and tap **Select**.

The selected sensor name and its connection status will appear on the **main screen**.

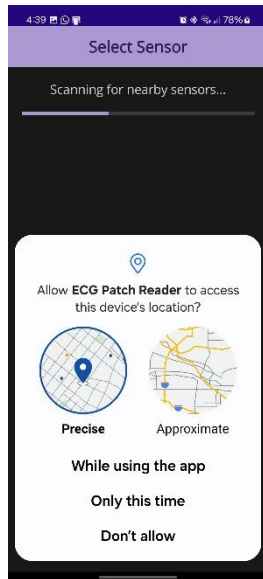
### Note:

When the application attempts to scan for sensors for the first time, Android may display permission prompts requesting access to **Device Location** and **Nearby Devices**. These permissions are required for Bluetooth device discovery. Select **Allow** when prompted so that the application can detect available Biocom 6500 sensors.

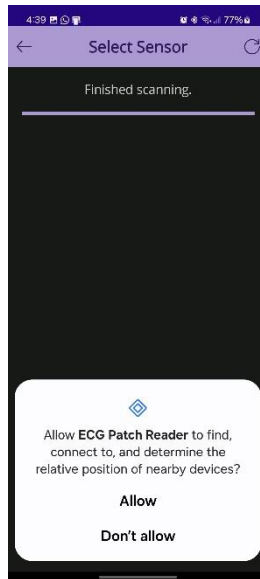
Below are the typical states during the process of scanning for sensors:



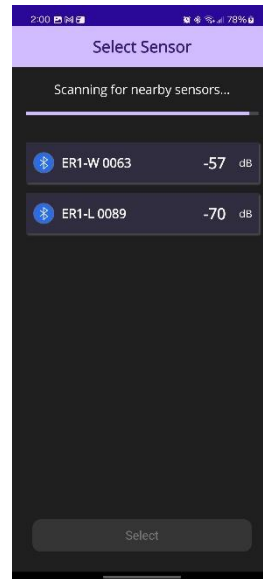
Scanning is in progress



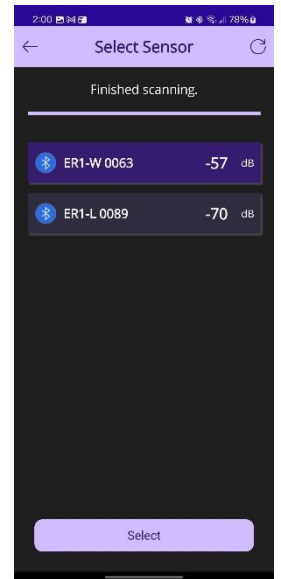
Request permission to access the device's location



Request permission to determine the relative position of nearby devices



Showing the discovered sensors



One sensor is selected

## 5. Starting and Stopping ECG Recording

After a sensor has been selected:



1. Tap the **Record toggle button** on the main screen.
2. The application connects to the sensor and begins receiving ECG data.



To stop recording:

1. Tap the **Record toggle button** again.

Stopping recording does not remove the sensor selection.

## 6. Viewing the Live ECG Signal

To verify ECG signal quality:



1. Tap the **View Raw ECG** button on the main screen.
2. The application displays a **real-time ECG waveform**.

Use this screen to confirm:

- Stable ECG waveform
- Adequate signal amplitude
- Minimal noise or motion artifacts

Tap **Back** to return to the main screen.

## 7. Establishing the TCP Link to the PC

To transmit ECG data to the Windows PC:



1. Tap the **TCP Link** button on the main screen.
2. The TCP link screen opens and activates the **camera window**.
3. On the Windows PC, display the **QR code** generated by the Biocom HRV software.
4. Point the smartphone camera at the QR code.

The QR code contains the connection parameters required to establish the TCP link, including:



- PC name
- Network identifier (SSID or USB connection)
- IP address
- Port number

Once the QR code is successfully read, the application configures the TCP connection automatically.

The **main screen** will display the **PC name** and indicate that the link has been established.

## 8. TCP Connection Options

The Biocom HRV software allows the user to select the connection type before generating the QR code.

### 8.1. Wi-Fi Connection

In this mode:

- The smartphone and the Windows PC must be connected to the **same Wi-Fi network**.
- ECG data is transmitted over the local wireless network.

This mode is suitable for most laboratory and office environments.

### 8.2. USB Connection

In environments where wireless communication is restricted, the connection can be established using a **USB cable**.

In this mode:

- The smartphone is connected directly to the PC via USB.
- The connection uses **Android Debug Bridge (ADB)** to create the TCP communication channel.

This option is recommended for:

- Corporate or hospital networks with strict Wi-Fi policies
- Environments with unstable wireless connections
- Situations requiring a direct wired connection

## 9. Starting and Stopping Data Streaming

After the TCP link is established:



1. Tap the **Streaming toggle button** on the main screen.
2. ECG data will begin streaming from the smartphone to the PC.

To stop streaming:



1. Tap the **Streaming toggle button** again.

Stopping streaming does not disconnect the Bluetooth sensor.

## 10. Viewing TCP Link Information

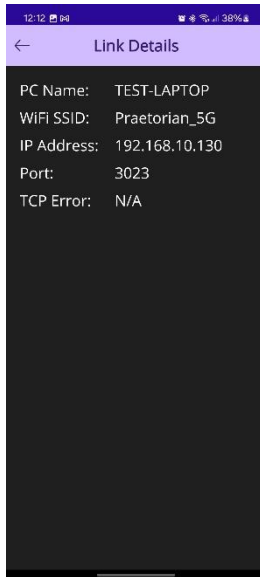
To view connection details:

1. Tap the **Information button** on the main screen title bar.

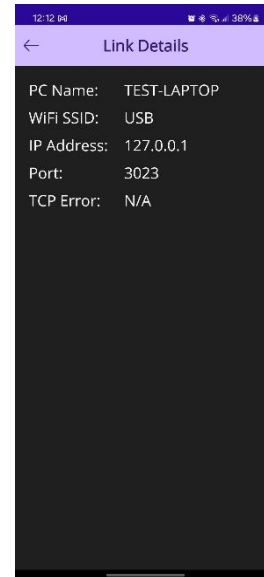
The **TCP Information screen** displays:

- PC name
- Network identifier (SSID or USB connection)
- IP address
- Port number
- Current connection status

This information may assist in troubleshooting network connectivity.



PC link details for the WiFi link



PC link details for USB link

## 11. Operational Notes

- Ensure the **Biocom 6500 sensor is powered on** before scanning for devices.
- ECG streaming requires both:
  - an **active Bluetooth sensor connection**, and
  - an **active TCP link to the PC**.
- For Wi-Fi operation, the smartphone and PC must be connected to the **same local network**.
- The smartphone provided with the Biocom HRV system is **preconfigured for operation with this application**.