

COMP 3004 – Team 10 Project Use Cases

Use Case 1: Turn on Device

Primary Actor:

- Device User

Precondition:

- User has the device

Main Success Scenario:

1. Power button is pressed.
2. The device turns on.

Post Condition:

- The device is on, and the LCD display shows the device indicators

Extensions:

- 2a. The device does not turn on.
 - o If the device does not turn on, there is likely no battery charge. The user must replace the battery before trying to turn on the device again. If the device still does not turn on after a battery replacement, the user should contact Electromedical Products International, Inc customer support.

Use Case 2: Turn off Device

Primary Actor:

- Device User

Precondition:

- The device is turned on

Main Success Scenario:

1. Power button is pressed.
2. The device turns off.

Post Condition:

- The device is off

Extensions:

- 2a. Record button was pressed and treatment session is ongoing.
 - 2a1. Save session data
 - 2a2. Turn off device

Use Case 3: User change current intensity

Primary Actor:

- Device User

Precondition:

- The device is turned on

Main Success Scenario:

1. User presses the up arrow button
2. The intensity is increased

Post Condition:

- The device is at the intensity that the user desires

Extensions:

- 1a. User presses down arrow button
 - 1a1. The intensity level is decreased

Use Case 4: User change frequency

Primary Actor:

- Device User

Precondition:

- The device is turned on

Main Success Scenario:

1. User presses frequency button
2. Device frequency changes

Post Condition:

- The frequency of the device is what the user desires

Use Case 5: Record session history

Primary Actor:

- Device User

Precondition:

- Patient Session is finished
- Record button was pressed

Main Success Scenario:

1. Session data is saved into memory.
2. Program returns to the main menu.

Post Condition:

- The session is recorded and stored in memory: Waveform, frequency, start time, duration, and power level

Use Case 6: Device Auto-disables itself

Primary Actor:

- Device User

Precondition:

- An extension from another use case leads here.
- Device current exceeds 700 microamps.

Main Success Scenario:

1. Current stops being sent by device (value decreases to zero amps).
2. Program turns off immediately, bypassing all after-session menus (see UC 5).
3. Device disables itself and cannot be restarted.

Post Condition:

- Device is off and cannot be restarted.

Extensions:

- 2a. User is in the middle of a session
 - 2a1. Session ends.
 - 2a2. Recording is saved (so that technicians can diagnose the problem later).
 - 2a3. Program returns to the main menu immediately.
 - 2a4. Program shuts off.
 - 2a5. Program disables itself.

Use Case 7: Circuit check indicator (no skin contact)

Primary Actor:

- Device User

Precondition:

- The device is powered on
- Electrodes are not in contact with skin

Main Success Scenario:

1. Indicator flashes to alert no skin contact.
2. Timer is paused.

Post Condition:

- Timer is paused.

Extensions:

- 2a. Skin is touched
 - 2a1. Waveform cycle is resumed
 - 2a2. Indicator stops flashing, indicating skin contact with device
- 2b. Skin contact is lost for 5 seconds
 - 2b1. Treatment session stops
 - 2a2. Indicator stops flashing as a result of the treatment ending

Use Case 8: Low Battery indicator

Primary Actor:

- Device User

Precondition:

- The device is powered on
- Device is at 5% battery

Main Success Scenario:

1. Indicator flashes to alert battery is at 5%

Post Condition:

- N/A

Extensions:

- 1a. Battery drops to 2%
 - 1a1. Device issues 2% battery warning
 - 2a2. Shuts down
- 1b. User charges the device
 - 1b1. Indicator turns off

Use Case 9: User change waveform

Primary Actor:

- Device User

Precondition:

- The device is turned on

Main Success Scenario:

1. User presses the waveform button
2. The device waveform is changed

Post Condition:

- The device is at the waveform that the user desires

Use Case 10: User change timer

Primary Actor:

- Device User

Precondition:

- The device is turned on

Main Success Scenario:

1. User presses the timer button
2. The device timer is changed

Post Condition:

- The device changes to the next timer number (20, 40, 60)

Extensions:

- 2a. Device timer is unchanged if treatment is active

Use Case 11: CES Treatment

Primary Actor:

- Device User

Precondition:

- The device is turned on

Main Success Scenario:

1. User contacts the electrodes with skin and the circuit LED shows contact by turning ON
2. Treatment begins
3. Treatment ends as the countdown timer completes its cycle
4. User removes contact with skin and the circuit symbol which shows contact turns off

Post Condition:

- Device displays the main menu

Extensions:

- 1a. Device electrodes are not in contact with the skin (Use case: 7)
- 4a. Record button has been pressed (Use case: 5)
- 1-4a. Device reaches 5% battery level and battery level indicator (Use Case: 8) activates
- 1-4b. Device auto disables itself (Use case: 6)
- 1-4c. Power button is pressed (Use case: 2)