

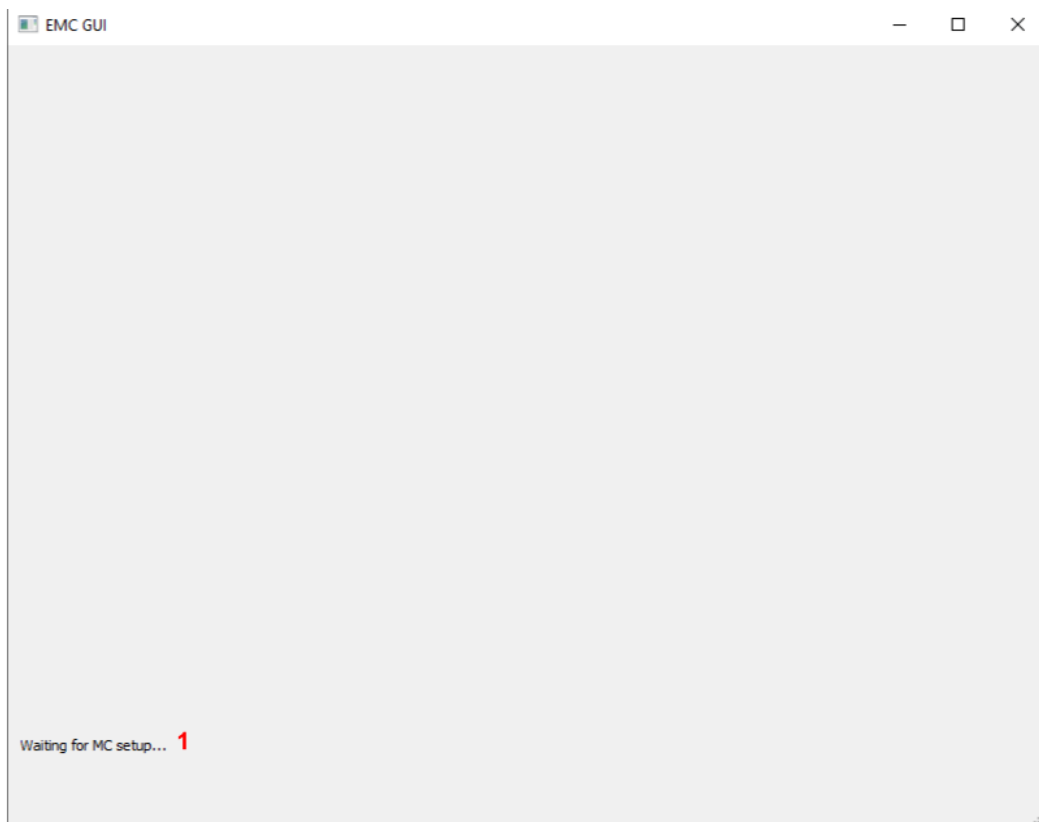
## EMC-GUI

### User Interface Specifications

The user interface includes three windows: the waiting window, the settings window, and the main window. Each window has its own purpose and specifications.

#### I. Waiting window

The waiting window is displayed to the user to indicate that a connection with the server has not been established. All main window features are hidden before a connection is established. Once a connection is established, this window shall be hidden.



1. Waiting message: A message indicating that the application is waiting for a message from the server is displayed to the user in the bottom left of the screen.

## II. Settings window

The settings window is displayed to the user after a connection with the server is established. The user must make a selection for all six options before the window may be closed. If the user attempts to exit the window before making these selections, an error message will appear.

The screenshot shows the 'EMC Settings' window. It contains six numbered selection boxes arranged in a 3x2 grid. Each box has a title and three radio buttons. The 'Confirm' button is highlighted with a blue border.

Number	Box Title	Radio Buttons
1	Pitch Motion Type	No Motion, Position, Velocity (selected)
2	Roll Motion Type	No Motion, Position, Velocity (selected)
3	Yaw Motion Type	No Motion (selected), Position, Velocity
4	Horizontal Motion Type	No Motion, Position (selected)
5	Heave Motion Type	No Motion, Position (selected)
6	Planetary Motion Type	No Motion, Position (selected), Velocity

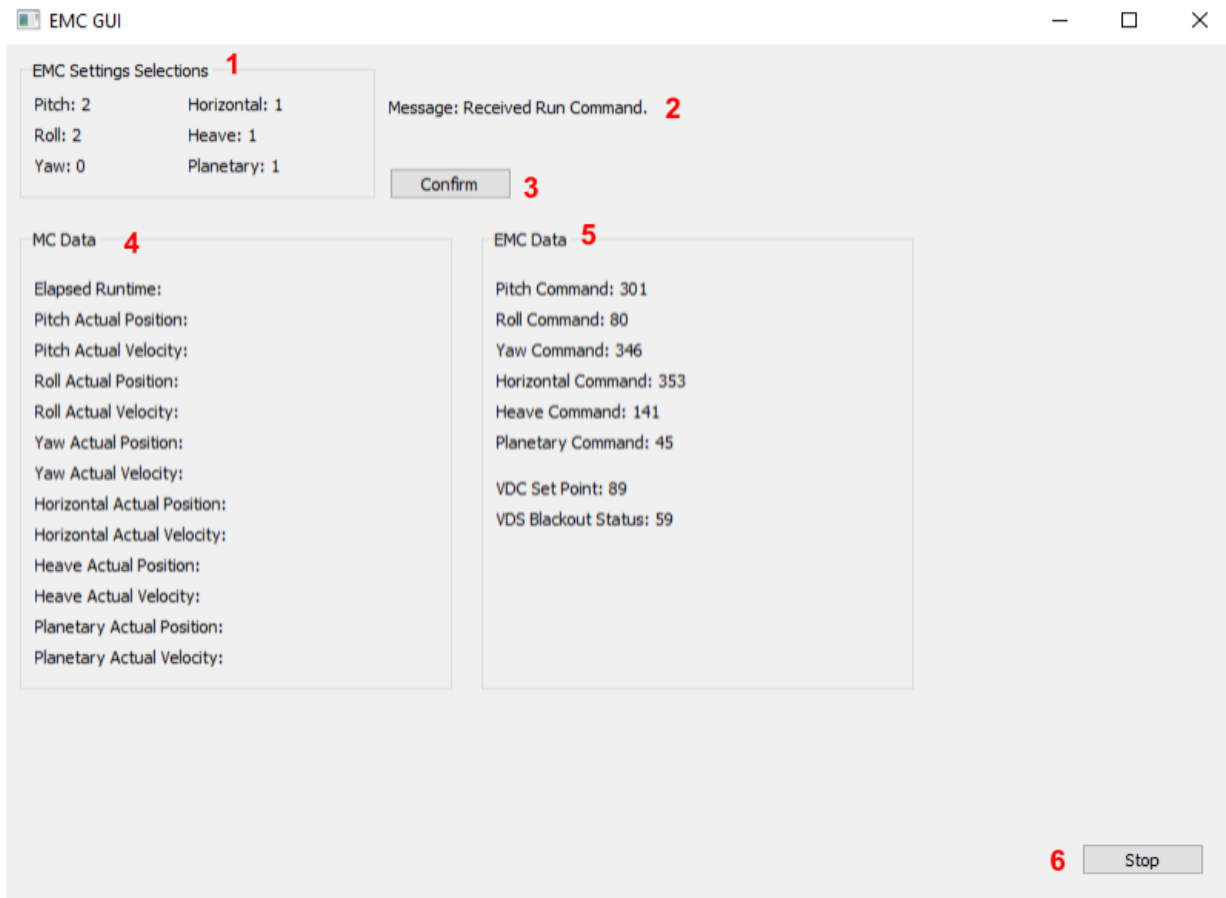
At the bottom, there are two buttons: 'Use Default' (labeled 7) and 'Confirm' (labeled 8, highlighted with a blue border).

1. Pitch Motion Selection: A box labeled “Pitch Motion Type” is displayed at the top left of the window. The box includes three radio buttons, labeled “No Motion”, “Position”, and “Velocity”.
2. Roll Motion Selection: A box labeled “Roll Motion Type” is displayed at the middle left of the window. The box includes three radio buttons, labeled “No Motion”, “Position”, and “Velocity”.
3. Yaw Motion Selection: A box labeled “Yaw Motion Type” is displayed at the bottom left of the window. The box includes three radio buttons, labeled “No Motion”, “Position”, and “Velocity”.
4. Horizontal Motion Selection: A box labeled “Horizontal Motion Type” is displayed at the top right of the window. The box includes two radio buttons, labeled “No Motion” and “Position”.

5. Heave Motion Selection: A box labeled “Heave Motion Type” is displayed at the middle right of the window. The box includes two radio buttons, labeled “No Motion” and “Position”.
6. Planetary Motion Selection: A box labeled “Planetary Motion Type” is displayed at the bottom right of the window. The box includes three radio buttons, labeled “No Motion”, “Position”, and “Velocity”.
7. Default Options: The selection window has a button labeled “Use Default” at the bottom right of the screen. The user may click this button to set all motion types to “Position”.
8. Confirm: The selection window has a button labeled “Confirm” at the bottom right of the screen; directly to the right of the defaults button (7). The user may click this button to save their selection and return to the main window.

### III. Main window

The main window is displayed to the user after settings have been selected. This is where all interactions with the server occur. The user may use several buttons to send commands to the server. Data sent from the server will be displayed on this screen.



1. EMC Settings Selections: A box containing the selections the user made in the settings window is displayed in the top left of the window. Each selection is labeled in the format "Motion Type: Selection", where the selection is a number 0, 1, or 2.
2. Message Box: A text box that displays the most recent message received from the server is shown at the top of the window; directly to the left of the EMC Settings Selections (1).
3. Confirm: A button labeled "Confirm" is displayed directly beneath the Message Box (2). The user may click the button to send the selected EMC settings to the server.
4. MC Data: A box labeled "MC Data" is displayed in the middle left of the window. The box contains 13 labels, one for each Motion Control position and velocity value sent from the server and one for elapsed time. These values will be updated every 6ms by the server.
5. EMC Data: A box labeled "EMC Data" is displayed in the middle right of the window. The box contains 8 labels, one for each External Motion Control command value sent from the server, one for set point, and one for blackout status. These values will be updated every 6ms by the server.
6. Stop: A button labeled "Stop" is displayed at the bottom right of the screen. The user may click this button to stop data collection and close the connection with the server.