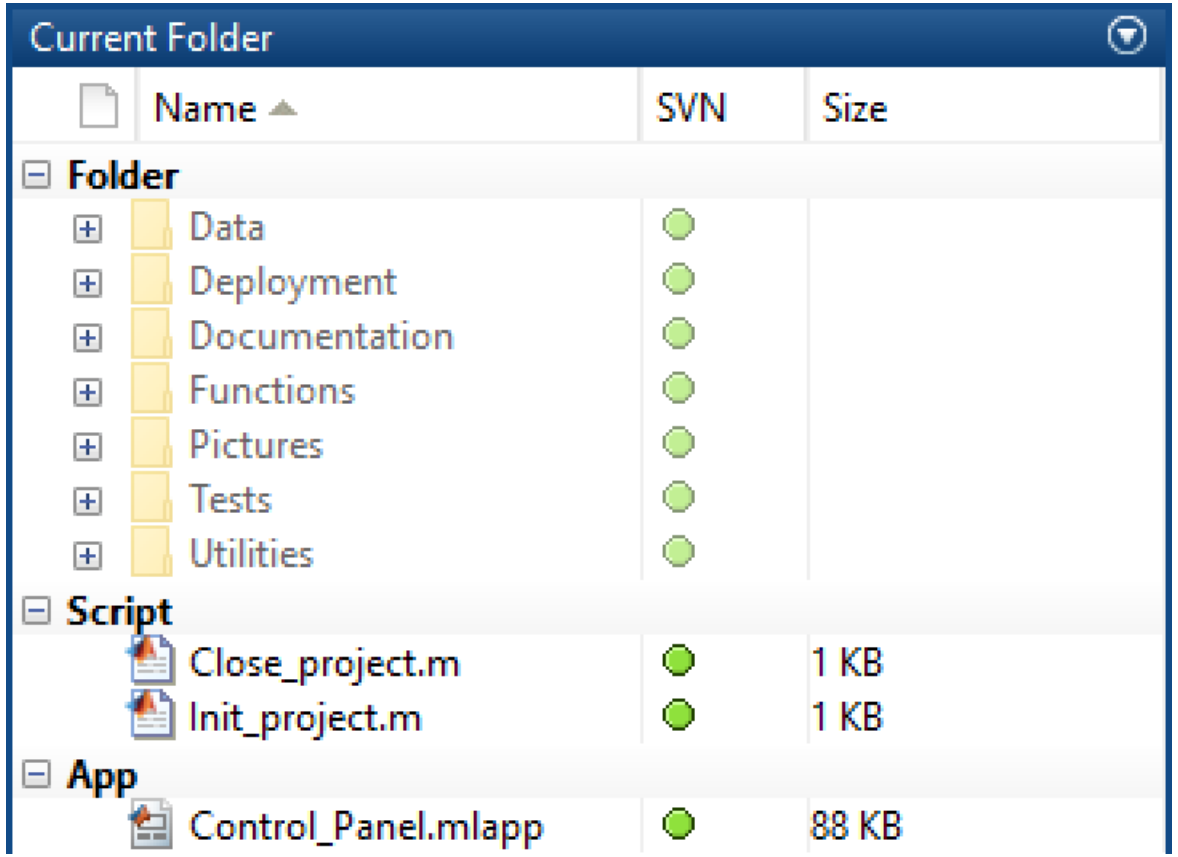
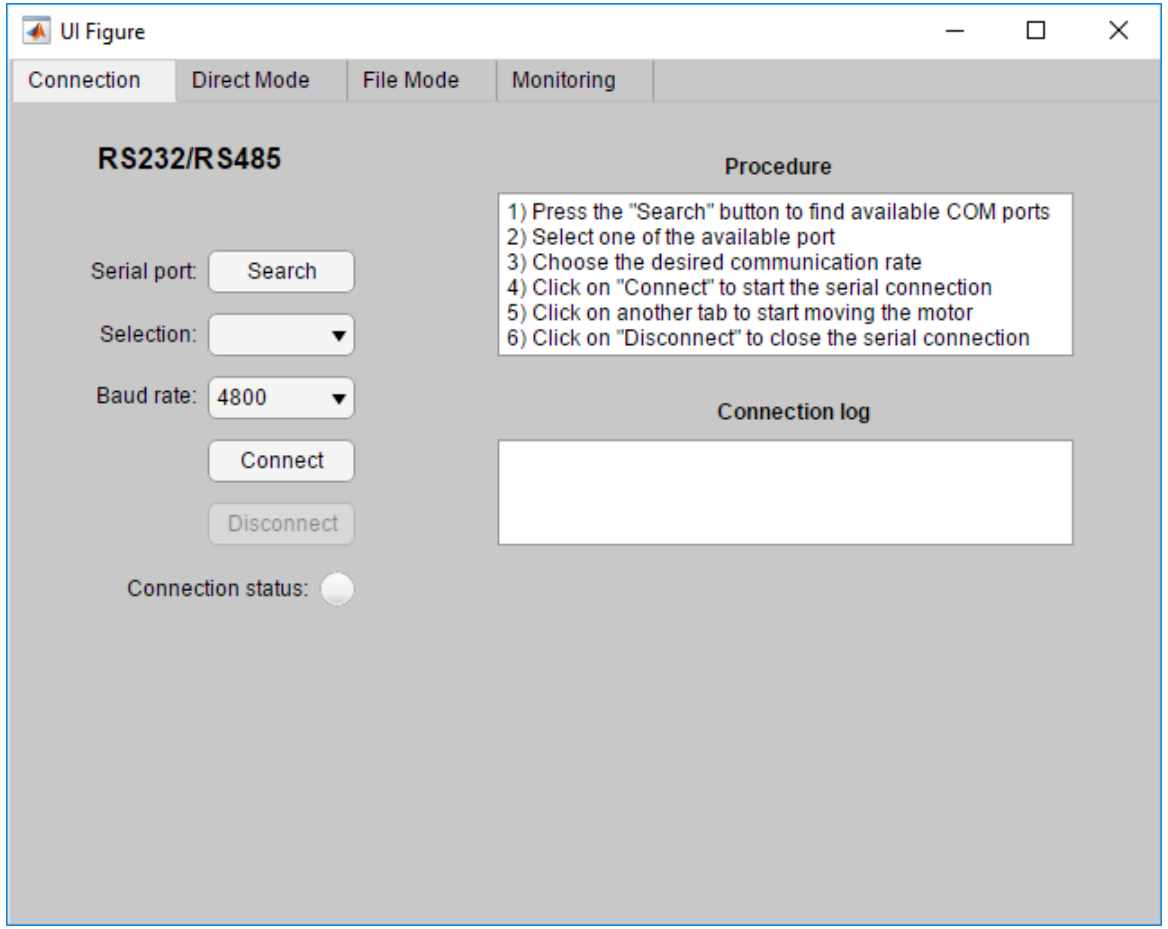
Documentation on the MATLAB interface to the Trinamic TMC-1160

Project's Folder View



1) Right click on "Init_project.m" and select "Run". This will setup the project in MATLAB
2) "Control_Panel.mlapp" is the main file of the project. Right click on it and select "Run" to start the Interface and run the App
3) When you are done using the project, right click on "Close_project.m" and select "Run". This will close the project

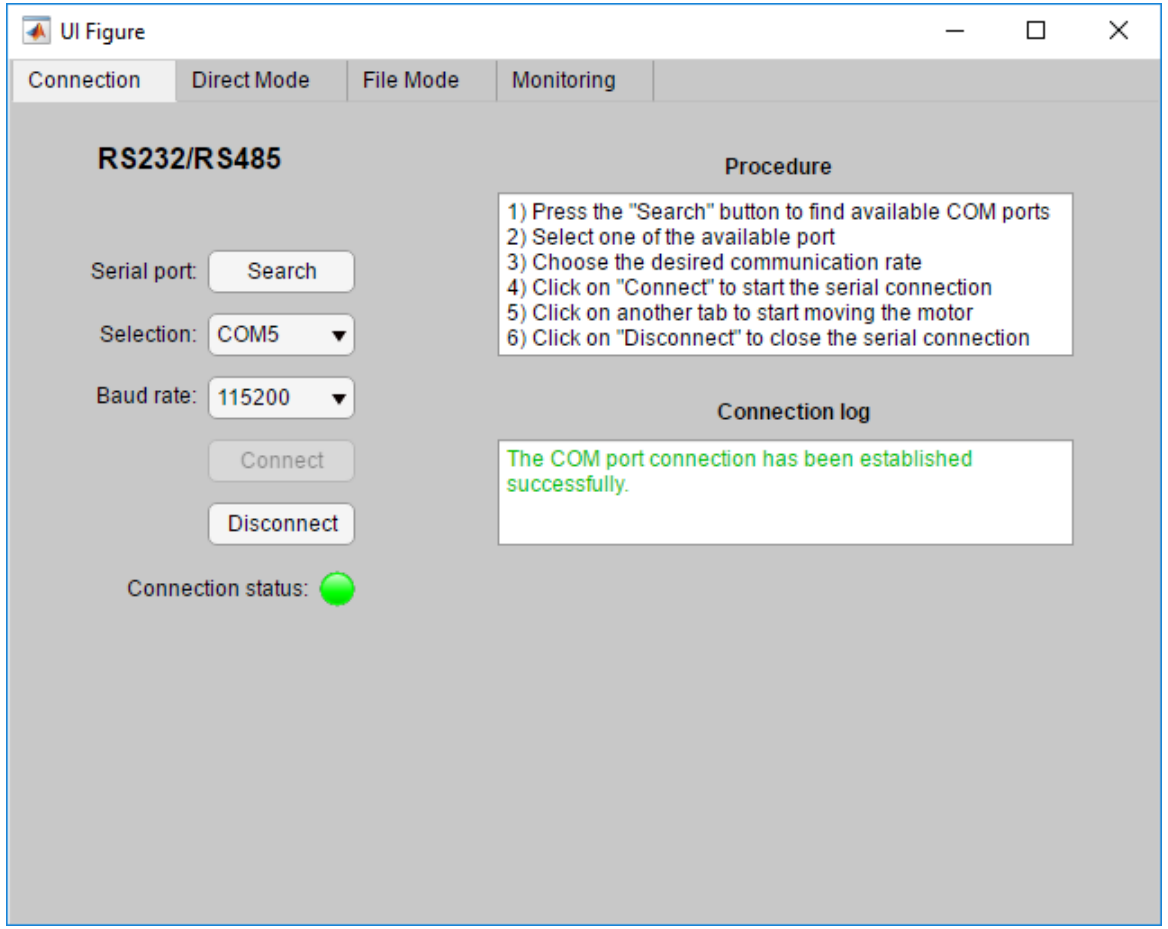
Graphical User Interface



This is the default screen of the App. It is made of four tabs:

1) Connection, to setup the serial communication from the App to the TMCM-1160 motor
2) Direct Mode, to send single commands to the TMCM-1160 motor
3) File Mode, to send a set of commands to the TMCM-1160 motor
4) Monitoring, to read and save data coming from the TMCM-1160 motor

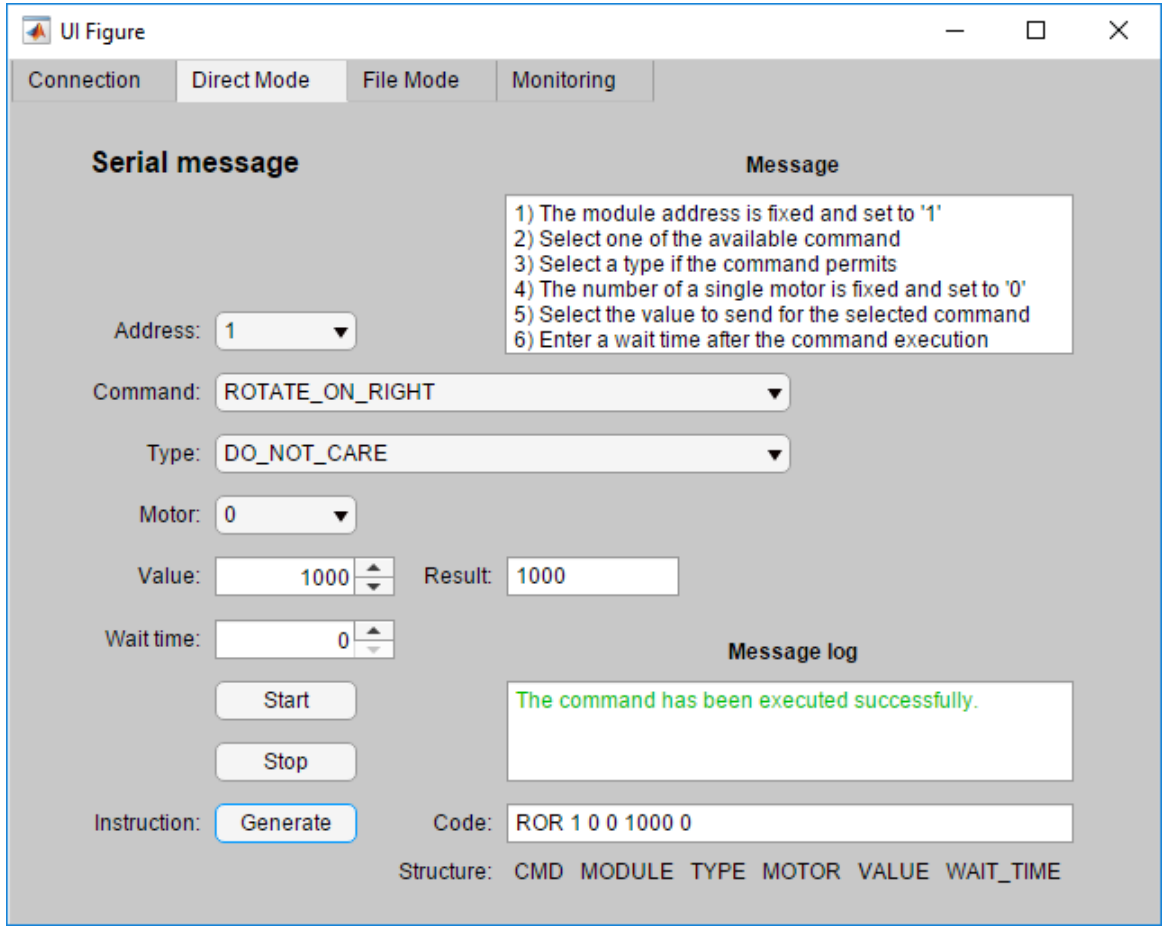
Connection Tab



In this tab the user can setup the serial connection:

1) Connect the motor to a USB port on your computer
2) Click on “Search” and select the right COM port from the proposed list
3) Select the Baud rate (the higher the better, but Windows limitation can occur on higher rates)
4) Click on “Connect” to start the connection
5) Click on “Disconnect” to close it

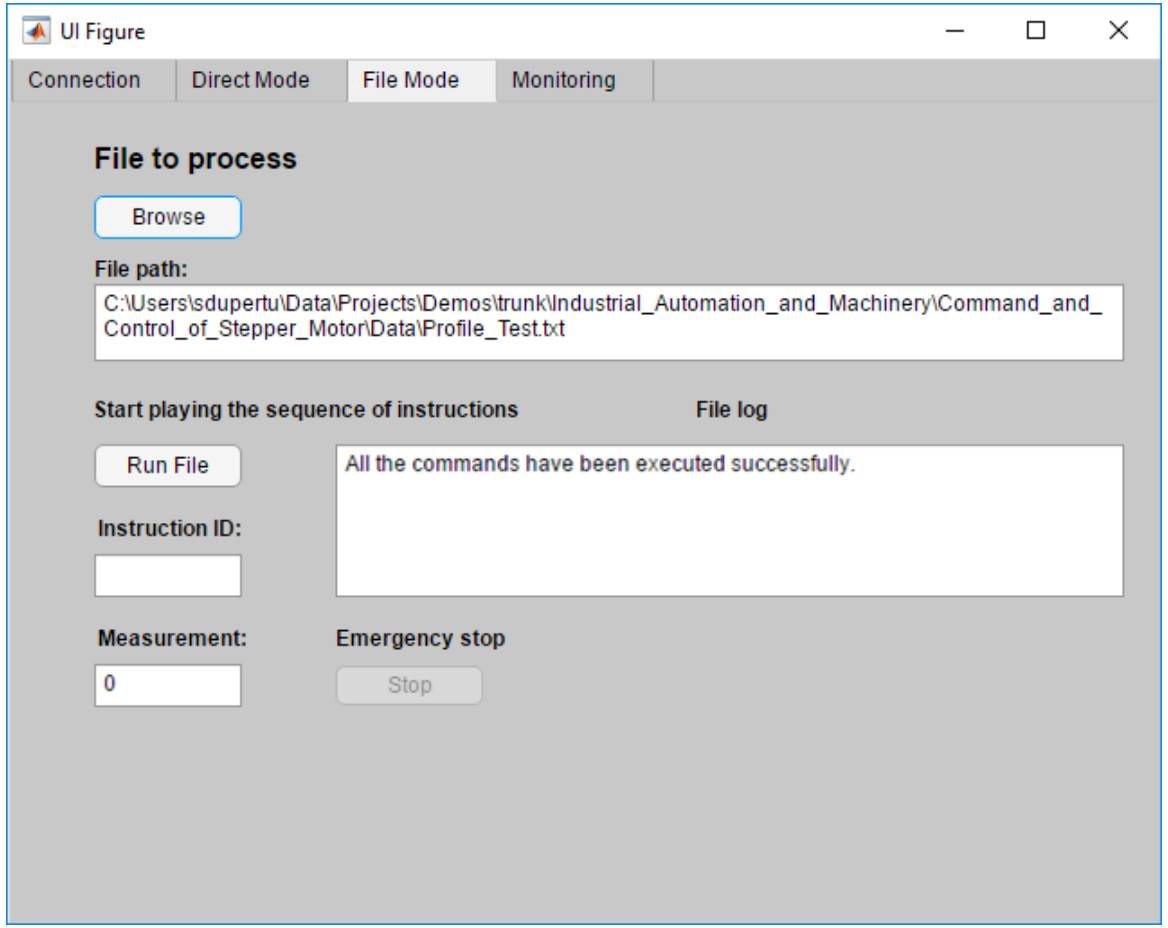
Direct Mode Tab



In this tab the user can send commands:

1) Select the desired command
2) Select the desired type if available
3) Enter a desired value to be added to the command
4) Enter a desired waiting time once the command is sent
5) Click on “Start” to send the command
6) Click on “Stop” to stop the execution
7) Click on “Generate” to create the instruction code to copy

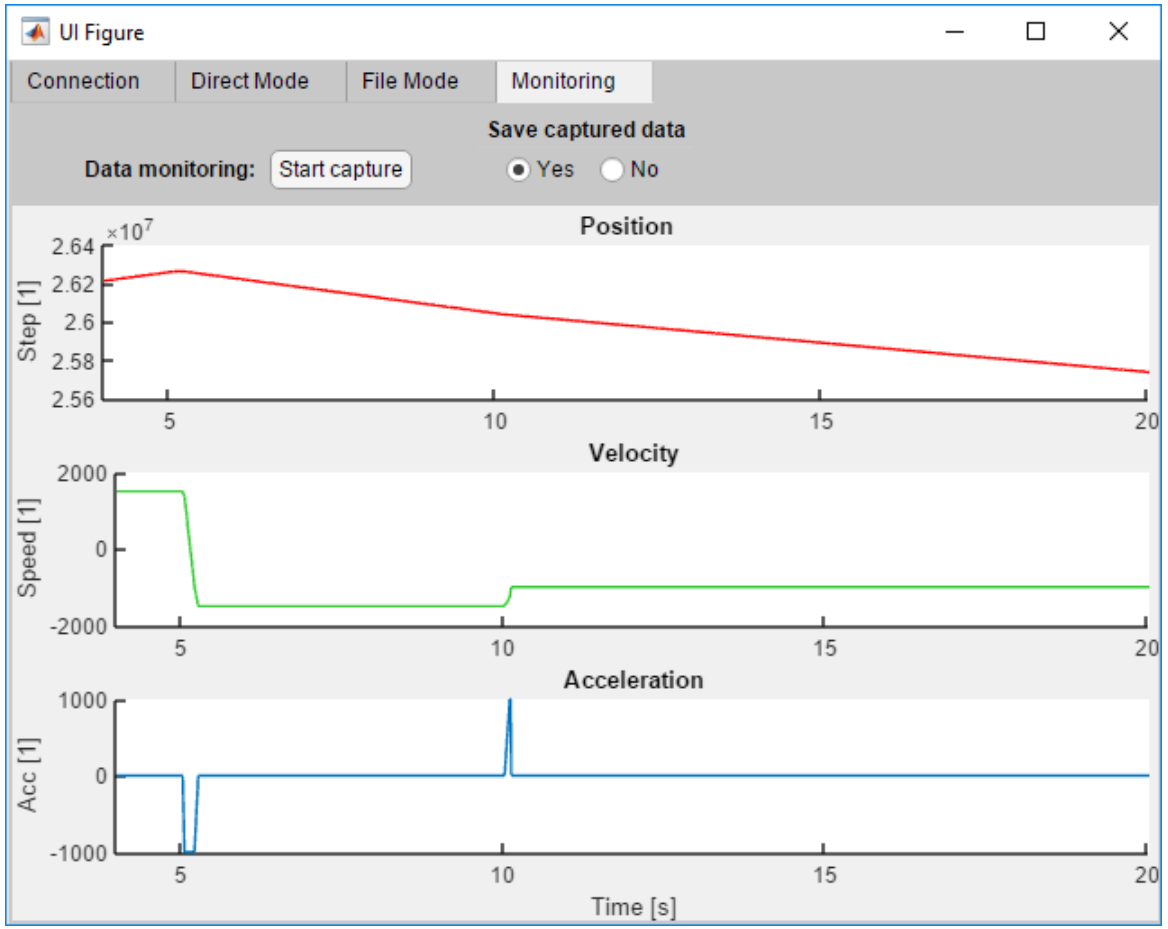
File Mode Tab



In this tab the user can process a file containing multiple commands:

1) Browse to the text file containing the instructions. The file path will then be displayed if the user wants to copy it
2) Click on “Run File” to start the execution of the saved instructions
3) If an error occurs it will be displayed in the “File log” area and any feedback value will be displayed in the “Measurement” area
4) This mode automatically triggers the monitoring of the data

Monitoring Mode Tab



In this tab the user can monitor data:

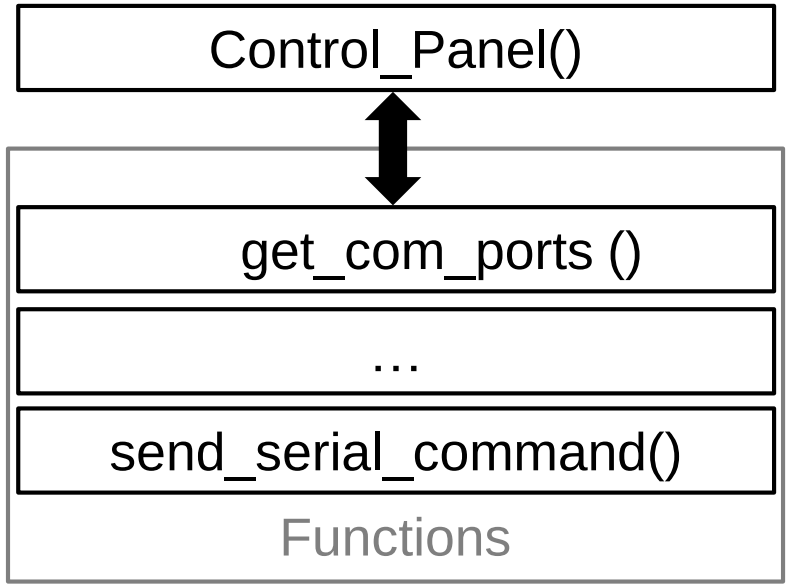
1) Select “Yes” or “No” to save the captured data to a MAT file. Once a capture is done, the radio button is automatically set to “No”
2) Click on “Start capture” to collect data
3) Click on “Stop capture” to stop collecting data

In “File Mode” the monitoring of data starts automatically without having to press the button.

MAT files are saved in the “Data” folder.

Software Code Architecture

- App's Project



- MATLAB Path Configuration