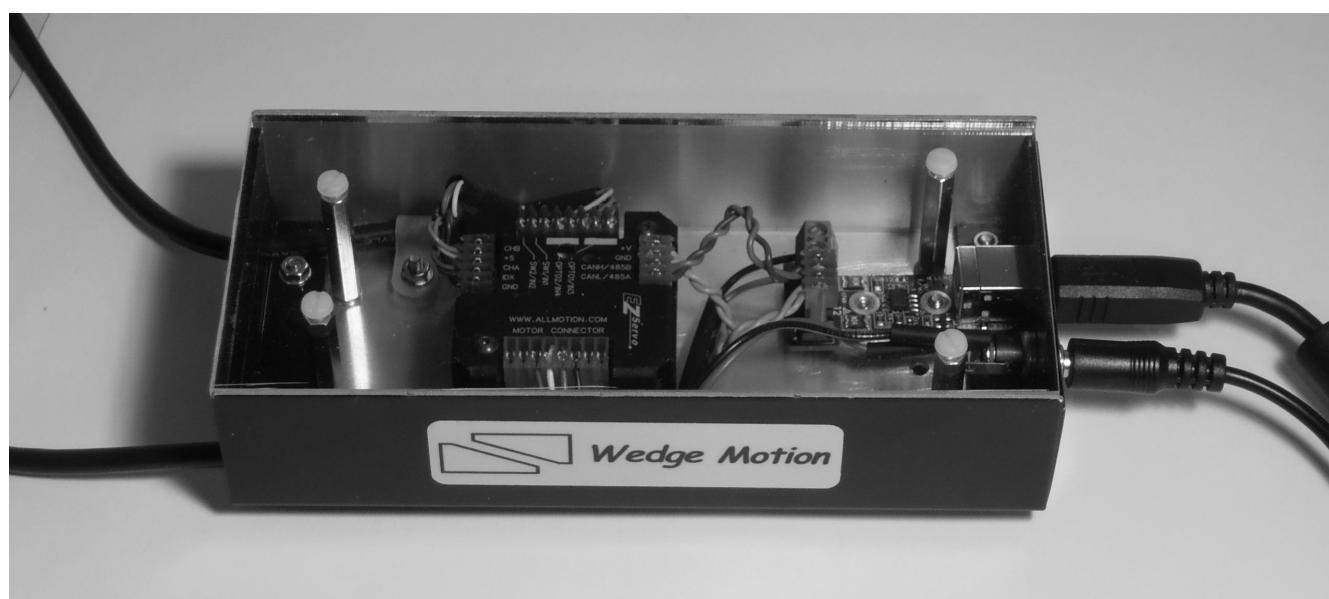


# WMC-2A motion controller



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## Introduction

The WMC-2A is a motion controller for laboratory and light industrial usage. It is comprised of:

- motion controller (specific to either a stepper or brushless-DC motor)
- USB-RS485 converter
- DC power supply
- Cable for connection to motor (500mm long and terminated with a DSUB9 connector)
- Cable for connection to signals (500mm long and terminated with a DSUB9 connector)
- USB cable to computer

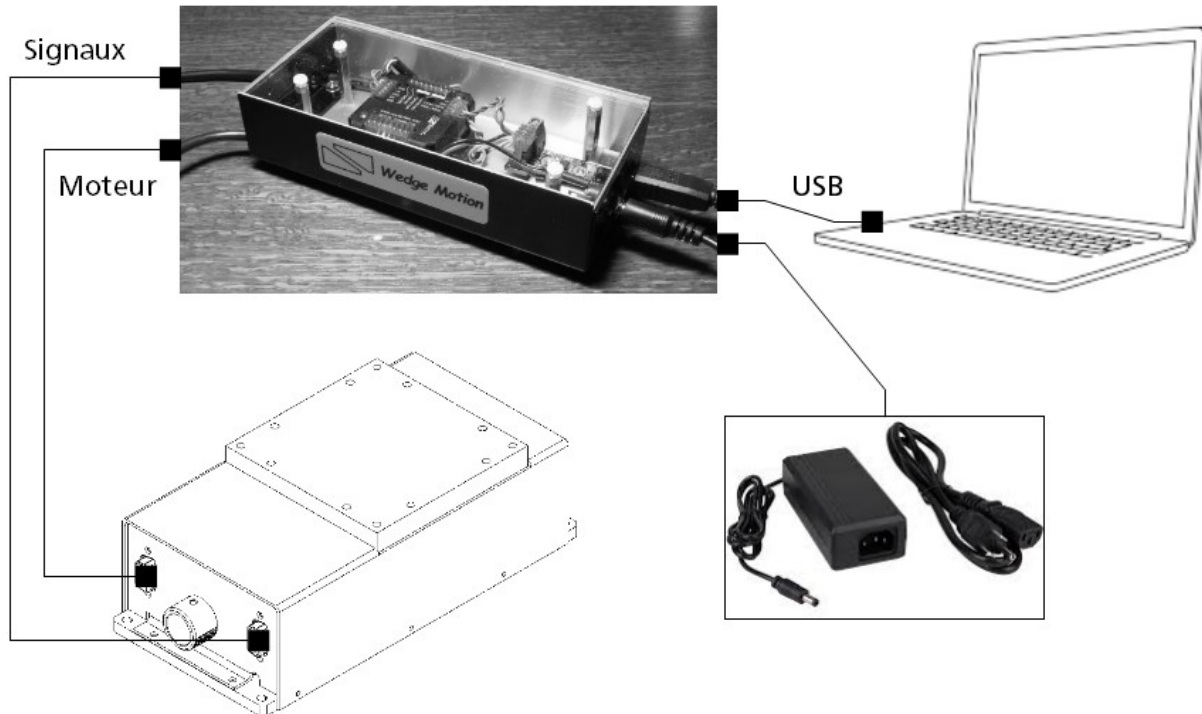


Fig.1: Illustration showing the connections

To facilitate implementation, Windows compatible demonstration software is provided.

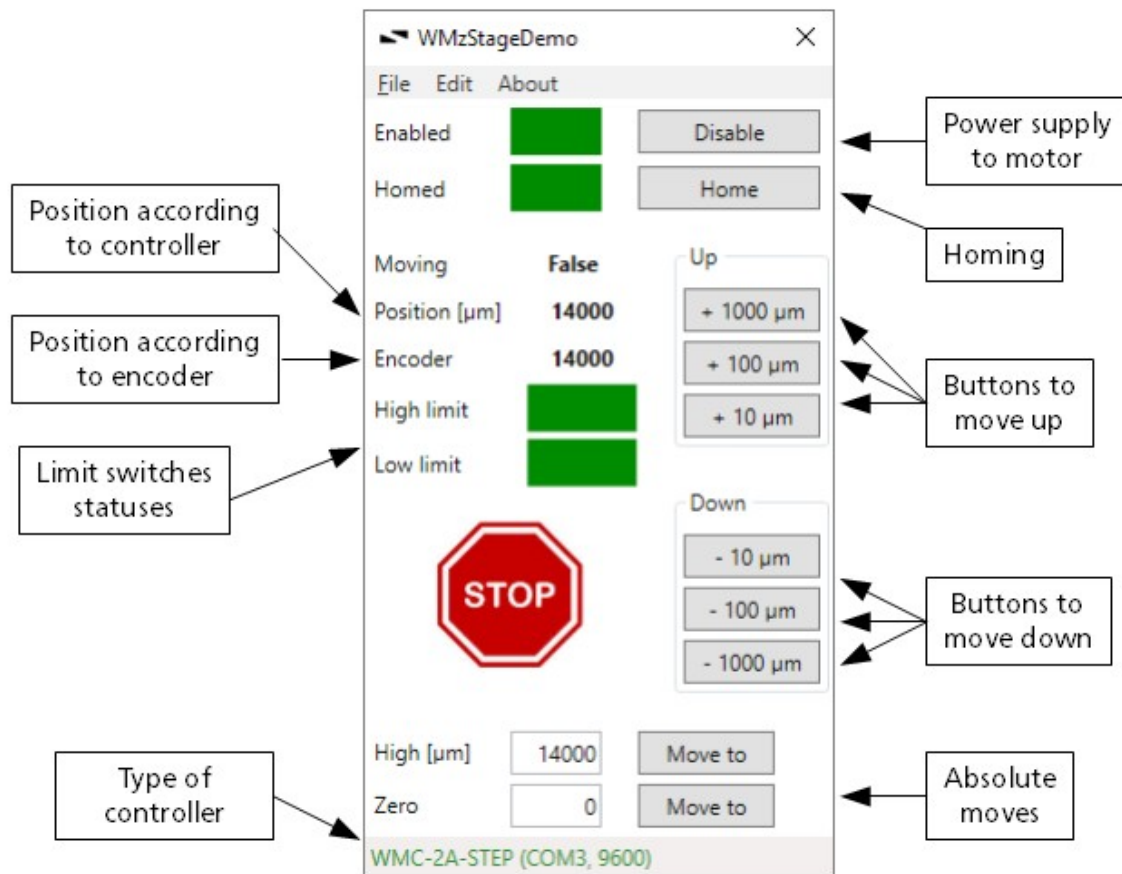


Fig.2: Screen capture of demonstration software

## Operations

Please follow the instructions in the section "installation of driver USB-RS485" to install the USB-RS485 driver.

Please refer to section "Installation of the demonstration software" to install the demonstration software.

Once the driver and demonstration software have been installed, perform the following:

1. Connect the motor and signals cables
2. Connect the USB cable to the computer
3. Connect the power cable, then turn on power. The controller's green LED lights up and then blinks slowly.
4. Launch the demonstration program WMzStageDemo.

**\*CAUTION:** Never switch on the power when motor and signals cables are disconnected.

**\*CAUTION:** Never disconnect the motor and signals cables when the controller is powered.

## **Specifications**

Motor type: stepper or brushless-DC (BLDC)

Number of axes : 1

Current : 2A peak (1,4A RMS)

Communication to the computer : serial interface

## **Drawing**

The following drawing shows the outer dimensions of the product.

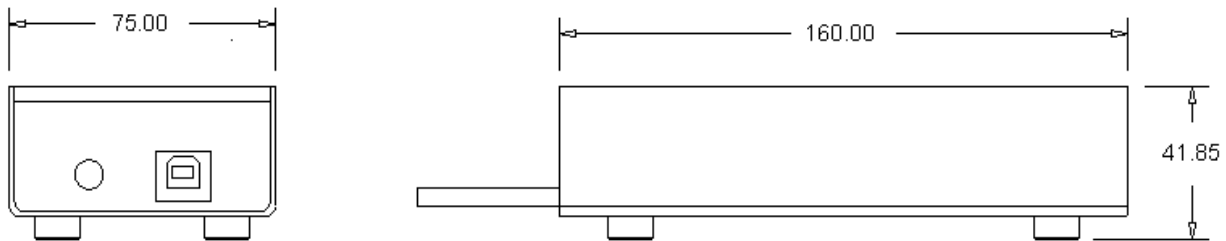


Fig.3: Views and principal dimensions in mm

## **Electrical connections**

Two (2) cables, each equipped with a DSUB9 connector, allow the electrical connection to the mechanical assembly. For the motor cable and the signal cable, figures 4 and 5 illustrate the DSUB connections.

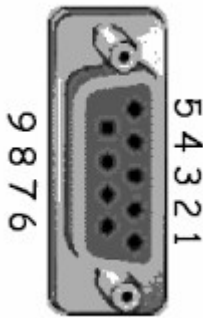


Fig.4: Motor cable connector

### **If using a stepper motor:**

Pin 1: Phase A

Pin 2: Phase A

Pin 3: NC\*

Pin 4: Phase B

### **If using a brushless motor:**

Pin 1: Hall sensor Vcc

Pin 2: Input Hall sensor A

Pin 3: Input Hall sensor B

Pin 4: Input Hall sensor C

Pin 5: Phase B  
Pin 6: NC  
Pin 7: NC  
Pin 8: NC  
Pin 9: NC

Pin 5: Hall sensor GROUND  
Pin 6: NC\*  
Pin 7: Phase A  
Pin 8: Phase B  
Pin 9: Phase C

\*NC : not connected

Hall effect sensor:

- Power supply = 5V
- Current = 20mA
- Hall sensors inputs are TTL compatible

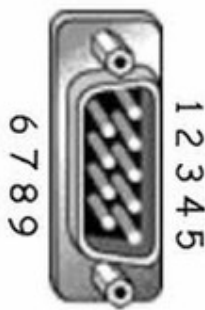


Fig.5: Signals cable connector (limit switches + encoder)

Limit switches and encoder:

Pin 1: Encoder Vcc  
Pin 2: Input encoder phase A  
Pin 3: Input encoder phase B  
Pin 4: Input encoder index  
Pin 5: Encoder 0V  
Pin 6: Limit switch Vcc  
Pin 7: Input limit switch upper position  
Pin 8: Input limit switch lower position  
Pin 9: Limit switch 0V

Limit switches:

- Power supply from 5 to 24V.
- Maximum DC current = 50mA
- Limit switches inputs are TTL compatible

Encoders:

- Power supply = 5V
- Encoder inputs are TTL compatible

## **Ordering instructions**

To place an order, please specify the type of motor:

- WMC-2A-STEP
- WMC-2A-BLDC

Note: Cables to the motor and signals are 500mm long.

## **Warranty**

Products are guaranteed for one year. See warranty terms and conditions.

## Installation of driver USB-RS485

Before using the product, install the driver for the USB-RS485 converter (CP210x from Silicon Labs).

Typically, the installation for Windows 7 and Windows 10 computers is automatic. Just connect the USB cable to the computer, Windows will then detect the new device and install the correct driver automatically. Once the installation is complete, it is recommended to open the device manager and confirm that a new serial port has been added.

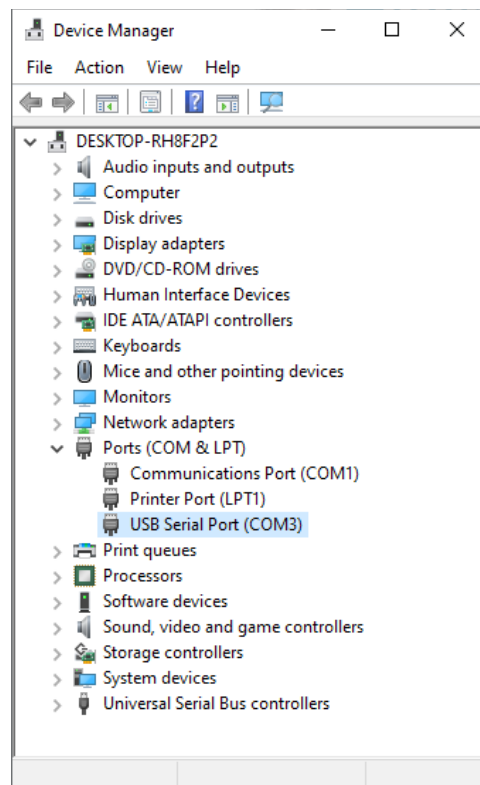


Fig.6: Serial port COM3 associated to the USB-RS485 converter

The driver is also downloadable from the Wedge Motion website for a manual installation. The following screenshots, obtained on a Windows 10 (64-bit version) computer, show the procedure for a manual installation.



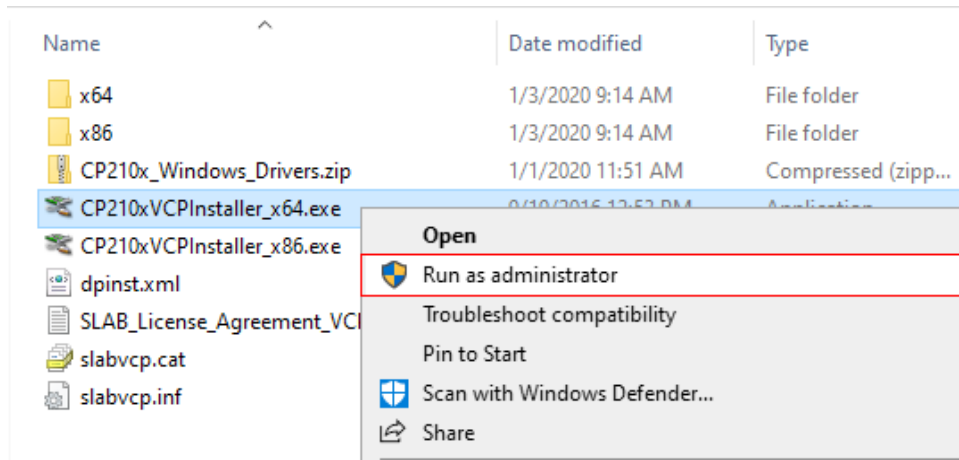


Fig.7: Right-click on the installer and launch in administrator mode

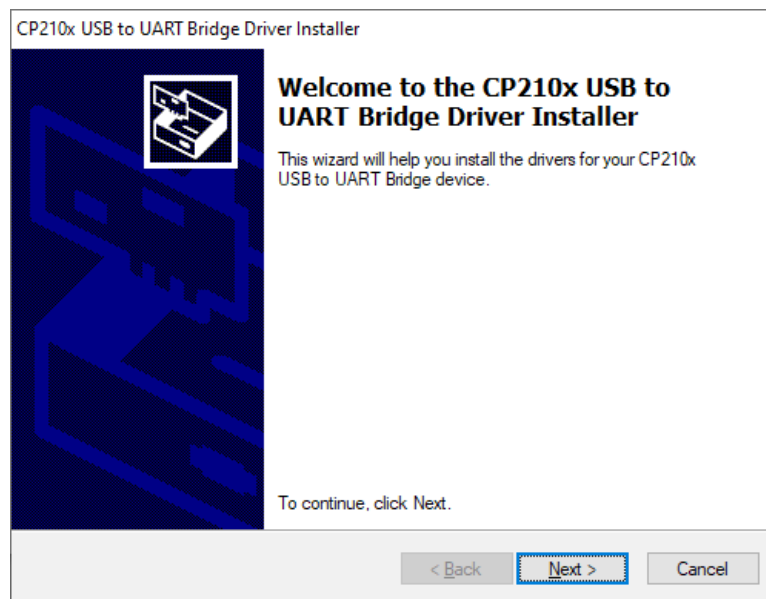


Fig.8: Click next

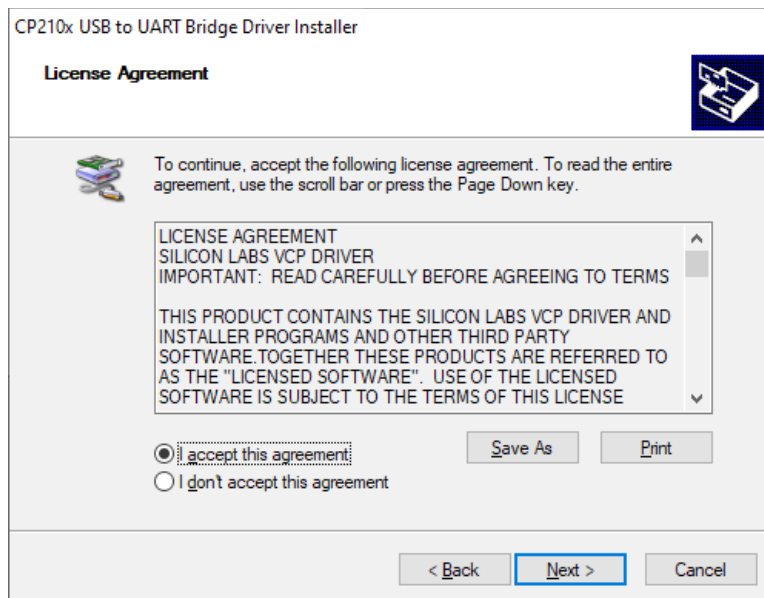


Fig.9: Accept agreement and click next

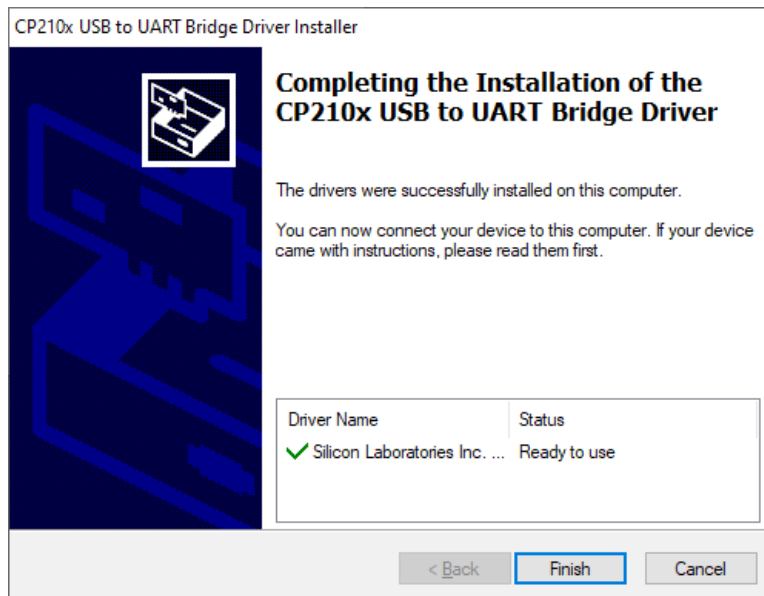


Fig.10: Click finish. The USB-RS485 driver is now installed.

Once the driver is installed, connect the USB cable to the computer. The USB-RS485 converter is then recognized by Windows. A virtual serial port is then automatically established and listed in the device manager. This computer selected COM3. However, another serial port may be assigned by your computer.

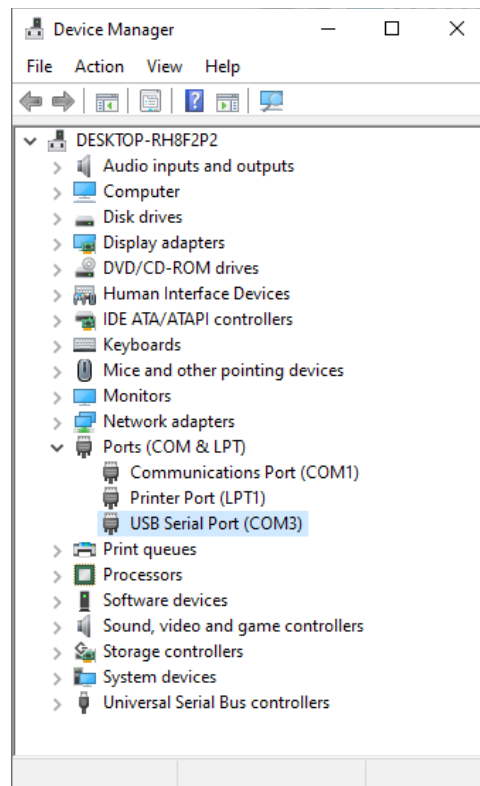


Fig.11: Serial port COM3 associated to the USB-RS485 converter

## Installation of demonstration software

The demonstration software can be downloaded from the Wedge Motion website. It can be installed locally or for “all users”.

- Local install uses a ZIP archive for a local and portable installation.
- All-user install uses a Windows installer for a global installation in administrator mode.

Once the software is installed, the type of controller must be selected along with the serial port. By default, the software starts in simulation mode.

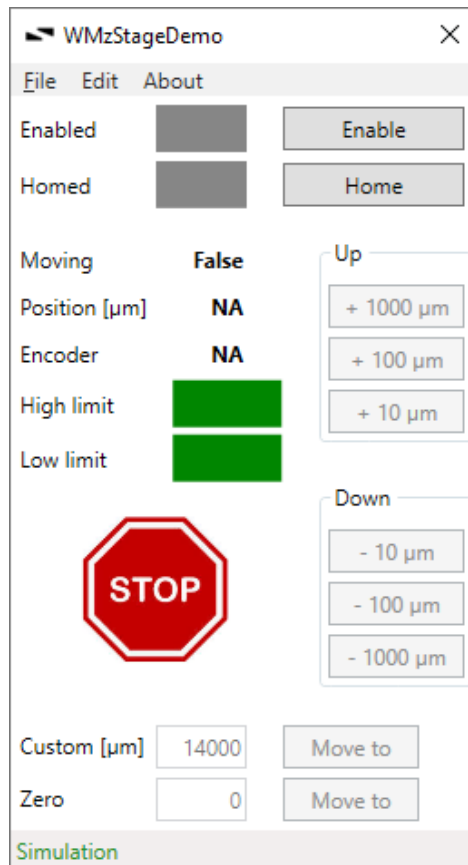


Fig.12: Demonstration software in simulation mode

It is then necessary to choose the type of controller.

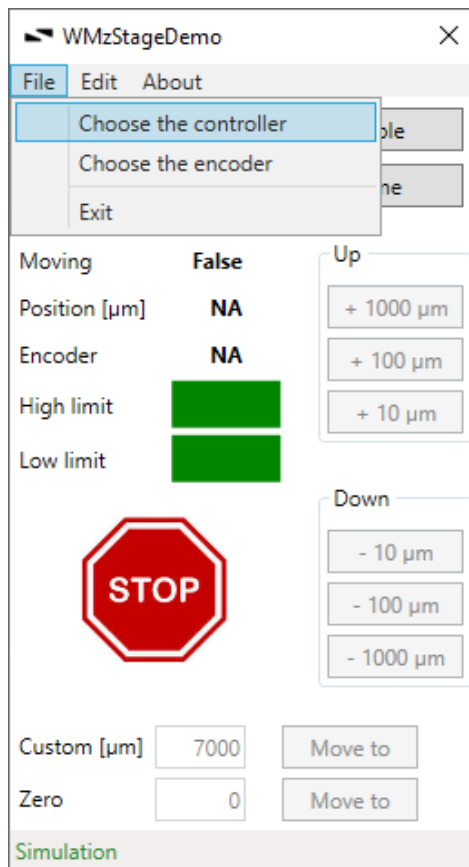


Fig.13: Controller choice

For example, below, the controller WMC-2A-STEP is chosen, which corresponds to a motorization with stepper motor.

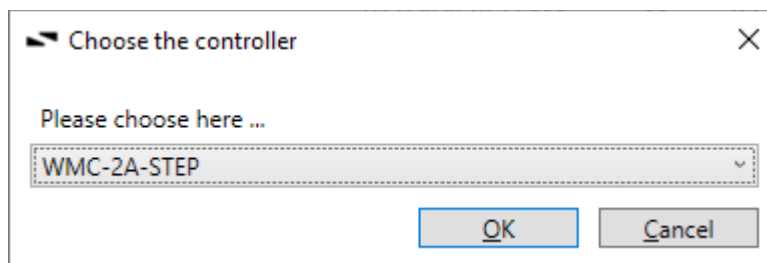


Fig.14: Controller choice

The Edit menu allows configuration of the serial port. Please, fill in the serial port so that it corresponds to the one assigned by the driver. For example, in the following figure, the software is configured to use the "COM3" serial port.

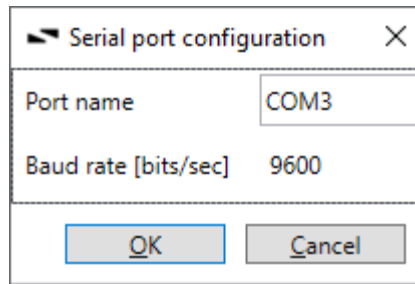


Fig.15: Serial port configuration

The following figure shows the software configured for the WMC-2A-STEP controller and serial port "COM3". The status bar (circled below) is displayed with green text when the software is initialized correctly and communication with the controller is established.

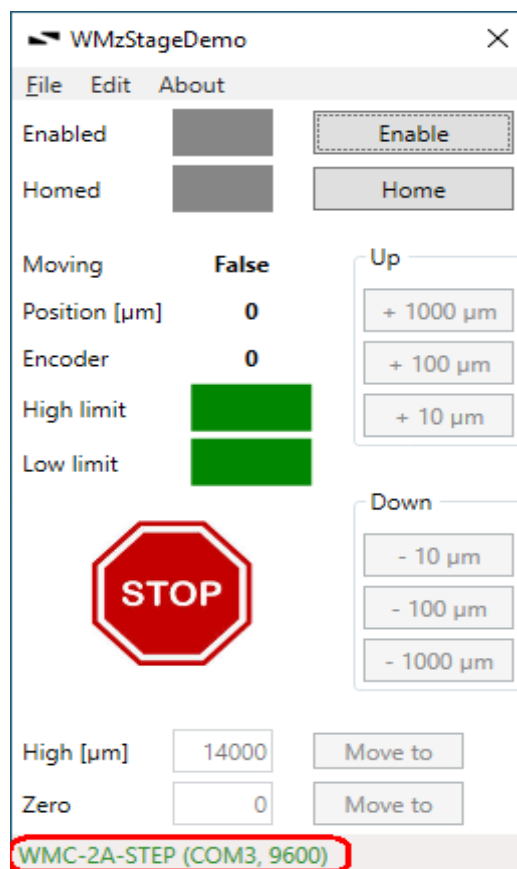


Fig.16: Status bar after successful initialization