RB-1 BASE MOBILE PLATFORM

Quickstart Manual
Version 2.0

RBTNK-DOC-170727A

Robotnik Automation, S.L.L.

Contents

1. Introduction

This manual describes the basic steps to operate the RB-1 Modular Mobile Manipulator (RB-1). The RB-1 BASE can be operated in three ways:

- By using the pad provided with the robot.
- By connecting with an SSH client to the robot.
- By using a remote PC connected to the same network created by the robot.

2. Fuses

By default the robot comes with some fuses disconnected for safety reasons. The fuses terminal is accessible from the outside of the electronic box. It is located in the control panel on the right side.

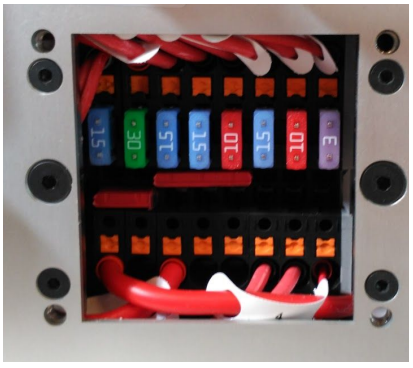

Figure 1. Panel of fuses

The fuses are numbered from left to right.

F0 and F1 are disconnected for the shipping. Please connected them before operating.

ID	Ampers	Description
F0	**15**	**Back panel charge connector & switch S1**
F1	**30**	**Main power protection**
F2	15	Driver 1
F3	15	Driver 2
F4	10	Control circuit protection
F5	10	12V DC/DC converter protection
F6	3	5V DC/DC Converter protection

F7		Not used

Table 1 – Fuses

3. Start-up Sequence

Have a look to the back panel of the robot:

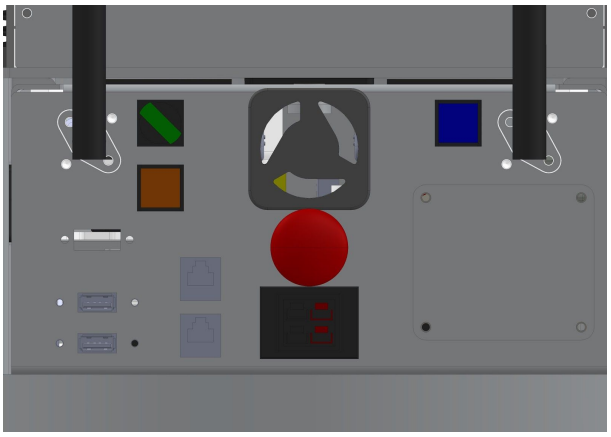

Figure 2. RB-1 back panel.

The following elements are the main components of the back panel necessary to start-up the robot:

	**ON/OFF switch**
	**CPU power button**
	**Motors reset button(only with torso)**
	**Emergency button**

The general ON/OFF SWITCH (green) must be activated for giving energy to all the elements of the system. Press the CPU POWER BUTTON (blue) button to switch the computer ON, the blue button will light up. At this moment the PC robot controller starts-up and loads all the necessary programs for booting.

To move the robot, the EMERGENCY BUTTON (red) must be pulled out and the RESET BUTTON (orange) must be pressed once.

NOTE: Remember that the robot is able to reach high speeds. Please be careful and use the higher speeds only in wide areas.

4. Pad Teleoperation.

If the startup sequence has been executed in the correct order, the pad will shake after pressing the Start Button. Then, the robot will be ready to be teleoperated.

Figure 4. PS4 Pad Operation Mode

NOTE: If no Deadman button is pressed, the robot will not move.

A more detailed description of the Pad Teleoperation is provided in the software manual.

5. SSH Connection.

First, connect to the Wifi Network provided by the RB-1 BASE:

Wifi SSID: RB1_*SerialNumber*
Wifi Password: R0b0tn1K (R and K capital letters)

Then, connect to the CPU using your favourite SSH Client:

RB-1 IP Address: 192.168.0.200
User/Password: rb1 / R0b0tn1K (R and K capital letters)

6. Remote PC

The RB-1 software architecture is based on the open source robots framework ROS Kinetic release, which is targeted at the Ubuntu 16.04 LTS Release. It is recommended to install both versions.

Ubuntu 16.04 installation guide: http://releases.ubuntu.com/16.04/
ROS Kinetic installation guide: http://wiki.ros.org/kinetic/Installation/Ubuntu
ROS Tutorials: http://wiki.ros.org/ROS/Tutorials

After both are installed, create a Catkin Workspace and install the RB-1 BASE Software from source, located at:
https://github.com/RobotnikAutomation/rb1_base_common

Then, add the following line to the `/etc/hosts` file in your computer to be able to connect to the RB-1 BASE CPU:

```
user@remote:~$ sudo vim.tiny /etc/hosts

# add the following line
192.168.0.200   rb1
```

Finally, you will be able to use the different ROS tools, such as RViz, to operate the robot from your remote PC.