



SUMMIT XL STEEL

MOBILE ROBOT



QUICK-START MANUAL

Robotnik Automation, Spain

RBTNK-DOC-SXLS0-190507AA

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1. Introduction

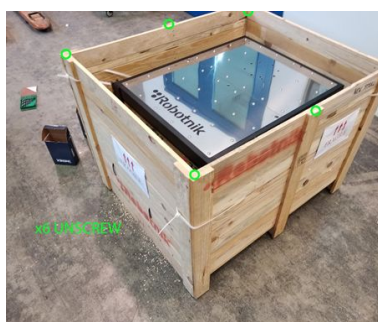
This manual describes the basic steps to operate the SUMMIT XL STEEL Mobile Platform. The SUMMIT XL STEEL can be operated in three ways:

- using the pad provided with the mobile platform.
- connecting with an SSH client to the mobile platform.
- using a remote PC connected to network created by the mobile platform.

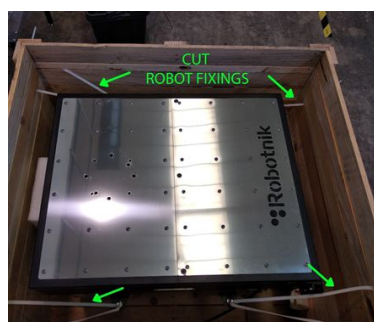
2. Unpacking the robot



1. Package overview
(Cut external bridles)



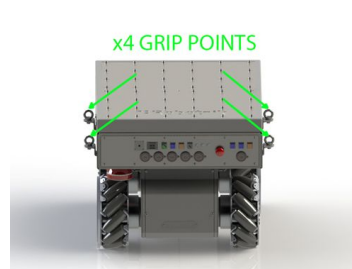
2. Dissassemble top cover
(x6 unscrew)



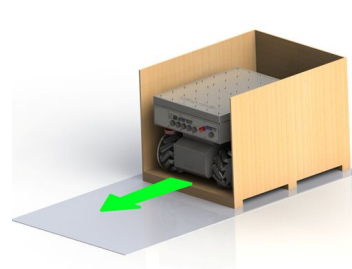
3. Free the robot
(Cut internal bridles)



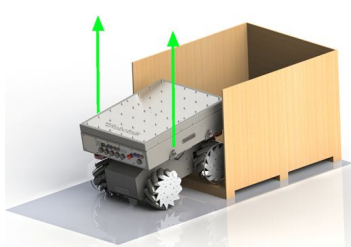
4. Dissassemble front cover
(x6 unscrew)



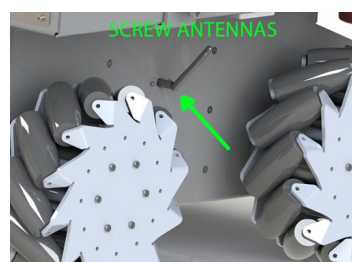
5. Robot manual extraction
Step 1 - You can use belts to move the robot. Anchor the belts in the grip points.



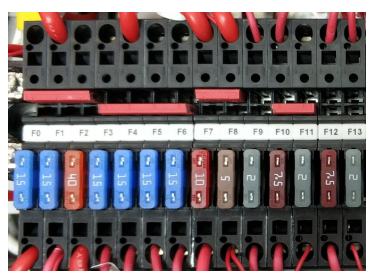
6. Robot manual extraction
Step 2 - Push the robot out of the box.



7. Robot manual extraction
Step 3 - Pull the belts up while you take out the robot



8. Assemble the WIFI antennas
(x2)



9. Install fuses
Look point "7. Disassembly

3. Start-up Sequence

Take a look to the back panel of the robot:

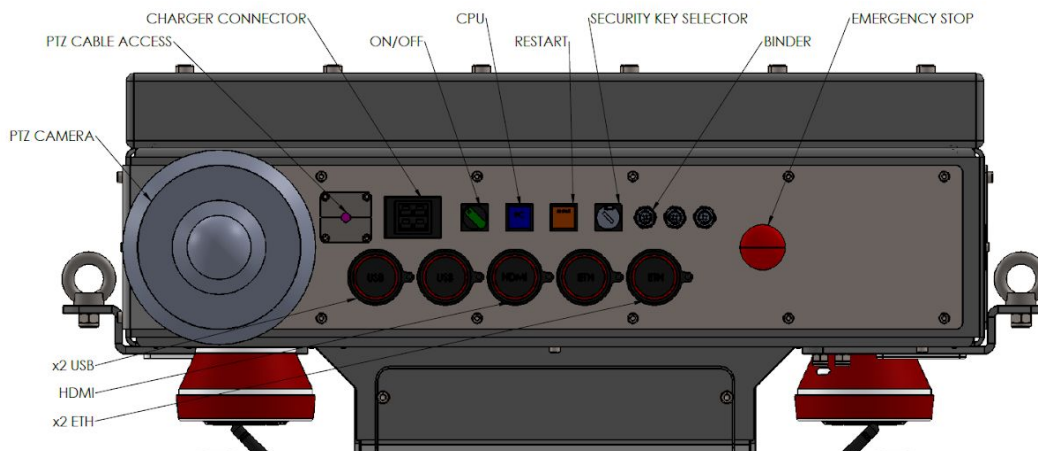


Figure 1. SUMMIT XL STEEL back panel

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

- **EMERGENCY STOP** will disable the drivers and stop the robot. CAUTION there is no rearm button, so the robot will keep moving when the Emergency Stop is released.
- General **ON/OFF** key: cuts the power of the whole robot. It has a green light indicator.
- **CPU POWER** blue indicator/switch: turns on and off the computer
- **RESTART**: orange indicator button restarts the power of robot.
- **CHARGER CONNECTOR**: to connect the provided battery charger
- Three **binder** connectors: 5, 12 VDC BAT. Intended to power external devices and protected with fuse
- Two free **USB** 2.0 ports
- Two **Ethernet** ports WAN and LAN
- One **HDMI** port.

The general ON/OFF SWITCH (green) must be activated for giving energy to all the elements of the system. Then, press the CPU POWER BUTTON (blue) button to turn ON the computer, the blue button will light up. At this moment the PC (Linux) boots up and loads all the necessary programs to operate the robot.

To move the robot, the **EMERGENCY BUTTON** (red) must be pulled out.

NOTE: Remember that the robot is able to reach high speeds. Use the higher speeds only in open areas.

4. Pad Teleoperation

If the startup sequence has been executed in the correct order, the pad will light up blue after pressing the **share button + start button** (in Indigo). Then, the robot will be ready to be teleoperated.



Figure 2. PS3 Pad Operation Mode



Figure 3. PS4 Pad Operation Mode

NOTE: If the Bluetooth connection is lost, the robot will detect this situation and will STOP for safety.

NOTE: The “Switch Kinematic Mode” is only valid when the robot has installed the mecanum wheels and the controller is configured to work in omni-directional mode.

NOTE: If Deadman button is NOT 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 SUMMIT XL STEEL Mobile Platform:

Wifi SSID: SXLS0-190507AA

Wifi Password: R0b0tn1K (R and K capital letters)

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

SUMMIT XL STEEL IP Address: 192.168.0.200

User/Password: summit / R0b0tn1K (R and K capital letters)

6. Remote PC

The SUMMIT XL STEEL software architecture is based on the open source robots framework ROS Indigo release, which is targeted at the Ubuntu 14.04 LTS Release. It is recommended to install both versions.

Ubuntu 14.04 installation guide: <http://releases.ubuntu.com/14.04/>

ROS Kinetic installation guide: <http://wiki.ros.org/indigo/Installation/Ubuntu>

ROS Tutorials: <http://wiki.ros.org/ROS/Tutorials>

After both are installed, create a Catkin Workspace and install the SUMMIT XL STEEL Software from source, located at:

https://github.com/RobotnikAutomation/summit_xl_common

Then, add the following line to the `/etc/hosts` file in your computer to be able to connect to the SUMMIT XL STEEL BASE CPU:

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

```
# add the following line
192.168.0.200    SXLS0-190507AA
```

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

7. Disassembly instructions for maintenance

This section describes how to access to the different internal parts of the robot.

7.1 Electronic components

To access the electronic board you have to remove the top covers of the base removing the 11 screws marked with red circle: 3 screws on the top and 4 more on each side.

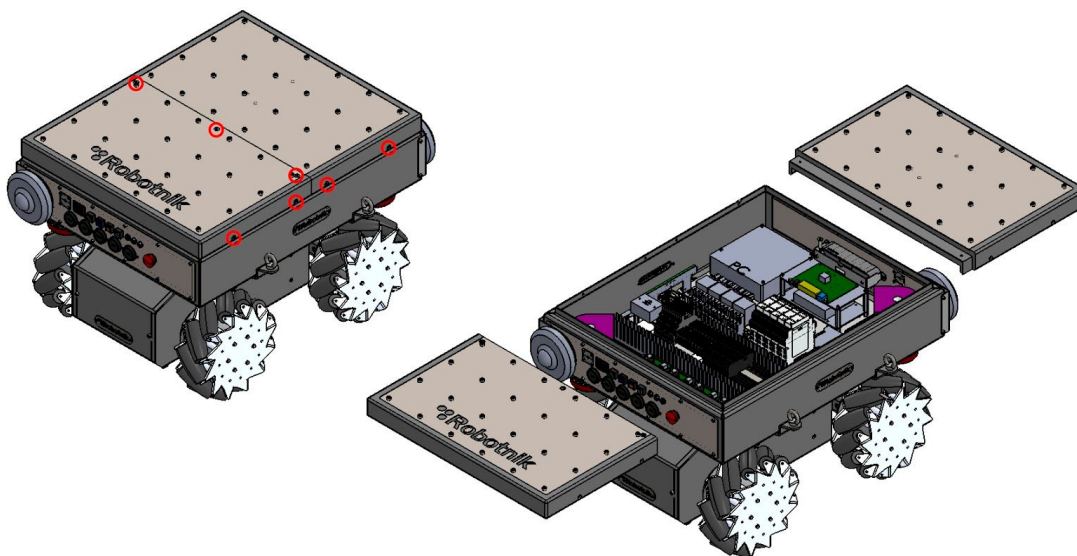


Figure 4 – Top covers screw removal

Next picture shows the components located on the electronic board.

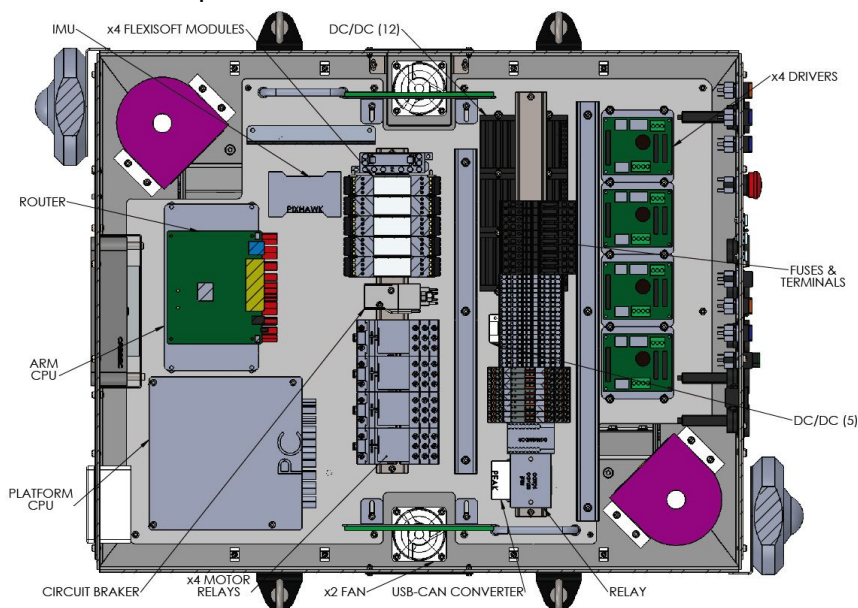


Figure 5 – Electronic board components

7.2 Battery

To extract the battery pack you have to remove 4 screws located in the back.

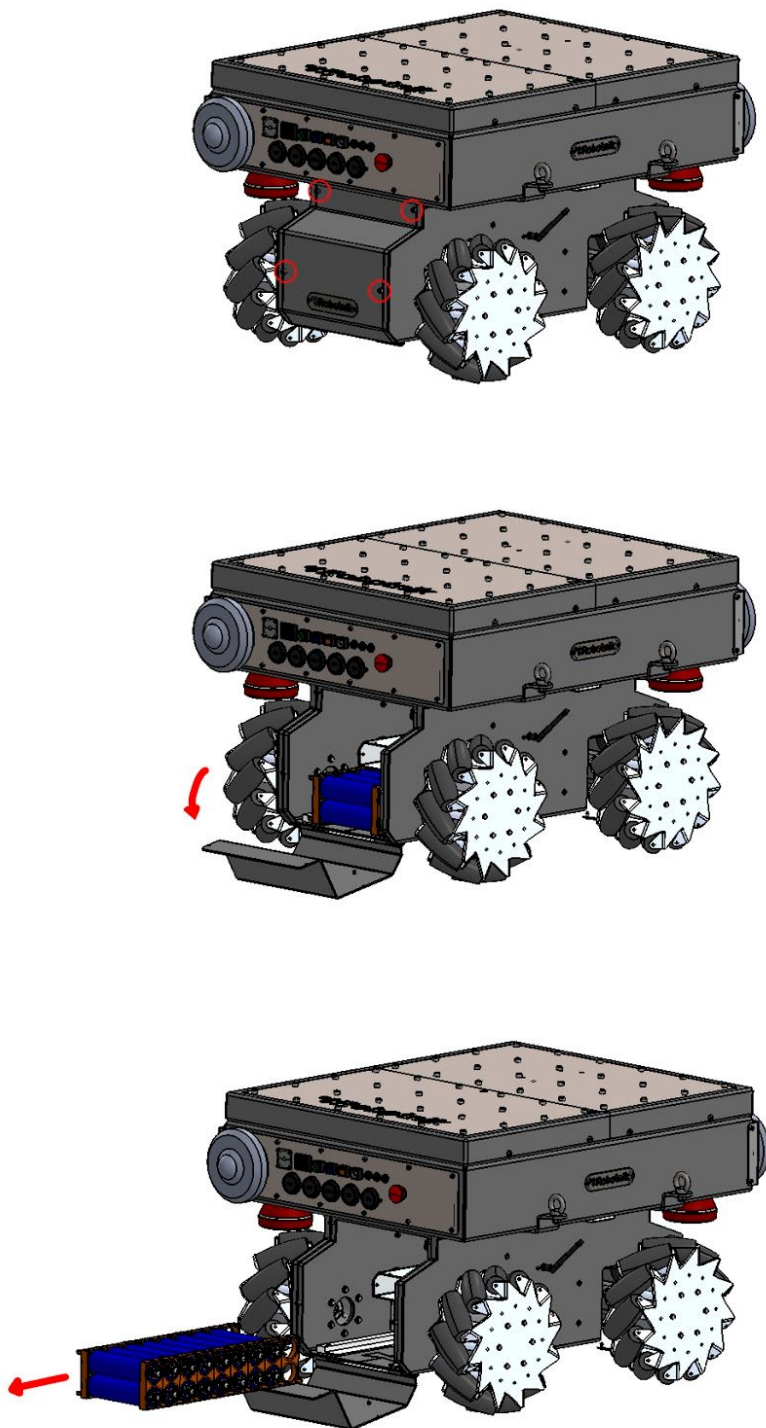


Figure 6 – Battery pack removal