

# MiR200™

with MiR Robot Interface 2.0



## Quick Start

en

**MiR**  
MOBILE INDUSTRIAL ROBOTS

300004-en, v.1.6 - 11/2018



To meet the CE marking requirements, the emergency stop must be mounted before the robot is used.

Doc version	Release date	HW release
1.4	2018-02-02	1.1
1.5	2018-08-20	1.2
1.6	2018-11-28	2.0

## About this Quick Start

This Quick Start guides you through the unpacking and starting up of the MiR200™. Further information on how to create maps, setting up missions etc. is found in the MiR200 Robot Interface 2.0 Reference guide. Information on product specifications, maintenance and troubleshooting is found in the MiR200™ User Guide. All manuals are available on the included USB stick and for download from our website.

## In the box



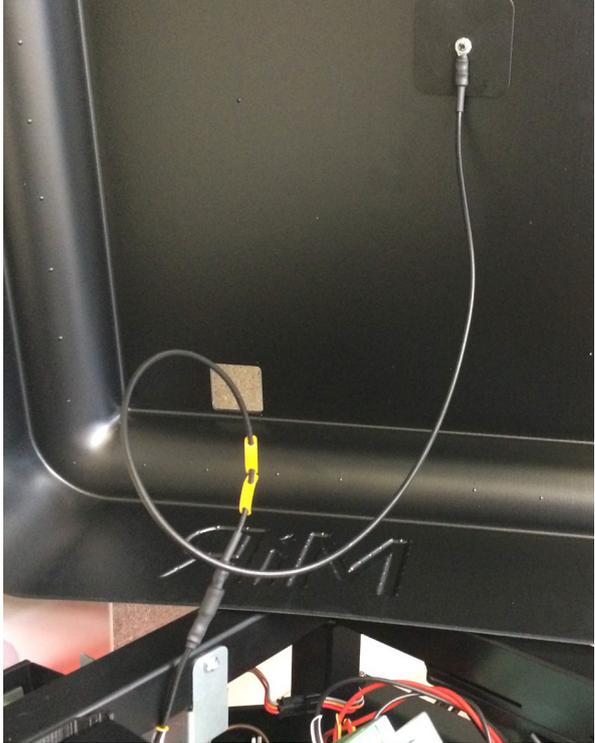
1. The robot
2. MiR200 kit
  - Emergency stop box, external antenna and 4 pcs. M10x40 bolts
  - Two charging cables, one for 110 V and one for 220 V
  - One external charger, 24VDC, 10A
3. MiR folder containing:
  - Printed documents: MiR200 Quick Start in English and local language if applicable, Passwords sheet, CE declaration of conformity, mounting instructions for emergency stop
  - USB flash drive: Getting started video, MiR200™ User Guide, CE declaration of conformity, other manuals.

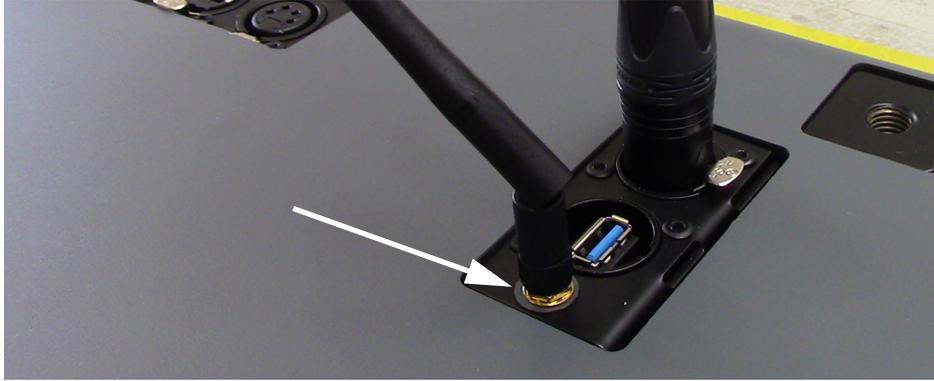
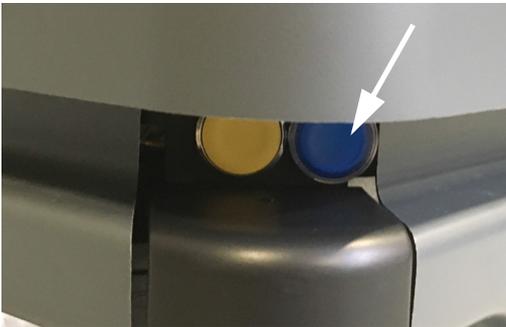
## Unpacking the MiR200™

Step	Action
1	<p>Remove pallet lid and take out the box with the MiR200 kit.</p> 
2	<p>Remove the top foam, foam blocks on the sides and the pallet frames.</p> 
3	<p>Place the pallet cover as a ramp at the robot's rear end.</p>  <p><b>Note</b> Keep the packaging for any future transportation of the robot.</p>

## Powering up

Step	Action	
1	<p>Grab the two rounded corners and carefully lift off the cover.</p> 	
2	<p>Connect one of the two battery cables to the plug on top of the battery box.</p> <p>The second cable is for an extra battery if installed.</p> 	<p>Switch on the four relays placed in the corner by the front laser scanner. Start with 32A main power, i.e. from the outer frame in.</p> 

Step	Action	
3	<p>Before putting the cover back on:</p> <p>Make sure that the battery disconnect switch is on (the two yellow indicators pointing to On).</p> 	<p>Connect the two ESD cables attached to the robot frame, next to the loudspeaker, and inside the cover.</p> 
4	<p>Carefully fit the cover correctly over the connector openings.</p> 	<p>Mount and connect the emergency stop box on top of the robot cover.</p> 
	<p> <b>NOTICE!</b> If a top module is going to be mounted on top of the robot, the emergency stop must be moved and placed in a position where it is easy to reach. See MiR200 User Guide.</p>	

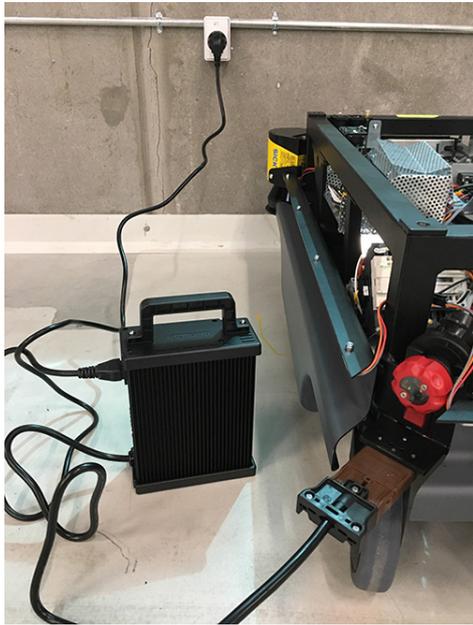
Step	Action	
5	<p>Connect the antenna to the connector on top of the robot cover. Remove the plastic cap from the connector before fixing the antenna.</p>  <p><b>Note</b> The antenna can be lowered and rotated in all directions to fit under a top module.</p>	
6	<p>Push the blue power button in the corner to turn on the robot.</p>  <p>The robot lights up with a yellow running light for a short moment, then enters emergency stop mode indicated by a constant red light.</p>	<p>Press the reset button on the emergency stop when it has lit up.</p>  <p>The robot light now switches to yellow constant light, indicating that the robot is paused and ready to operate.</p>

## Getting connected

Step	Action	
1	<p>On a PC, tablet or smartphone, go to the WiFi menu, find the name of your robot and connect to it.</p> <p>Open a browser and enter <a href="http://mir.com">mir.com</a>. Log in to the MiR Robot.</p> <p><b>Note</b> Access name and passwords required to log on to the robot's WiFi and the robot interface are found on the enclosed paper slip.</p>	
2	<p>When logged in, press <b>Manual control</b> on the joystick icon to put the robot in manual driving mode, and use the joystick to drive the robot down the ramp</p> <p><b>Note</b> The robot light switches to blue, indicating that the robot is in manual mode and can be controlled by the joystick.</p>	
3	<p><b>Note</b> It is recommended to reverse the robot down the ramp.</p>	

## Charging the robot

The robot arrives with a charged battery and can drive for up to three hours before recharging is required. Follow these steps to charge the robot using the enclosed charging cable:

Step	Action
<p>1</p>	<p>Remove the rear corner cover by pulling it towards you. You may have to apply a bit of force the first couple of times.</p>  <p>Then attach the charger to the robot's charging socket and to a power outlet. Turn on the rocker switch on the robot to begin charging.</p>  <p><b>NOTICE!</b> To avoid fast discharging, it is recommended to turn off the robot while charging.</p> <p><b>NOTICE!</b> Use only the original charging cable.</p>
<p>2</p>	<p>After a maximum of four and a half hours, the robot is fully charged. The robot emits a green light when the battery is full.</p>
<p>3</p>	<p>Turn off the rocker switch and disconnect the charging cable from the robot. Slide the corner cover back on.</p> <p><b>NOTICE!</b> The robot detects both cable and activated charging-button and will go into emergency stop in both cases.</p>

## Testing the robot

Before using the robot, you are recommended to check that all components and processes inside the robot work as intended.

1. Log on to the MiR Robot interface, see Getting connected on page 6.
2. Go to **Monitoring > Hardware health**.
3. When all components in a group are OK, it is marked with a green dot. If one or more components in a group are not in perfect condition, the group will be marked with a yellow or red dot and you can expand the group by clicking on the green arrow and see which components are not functioning correctly and why.

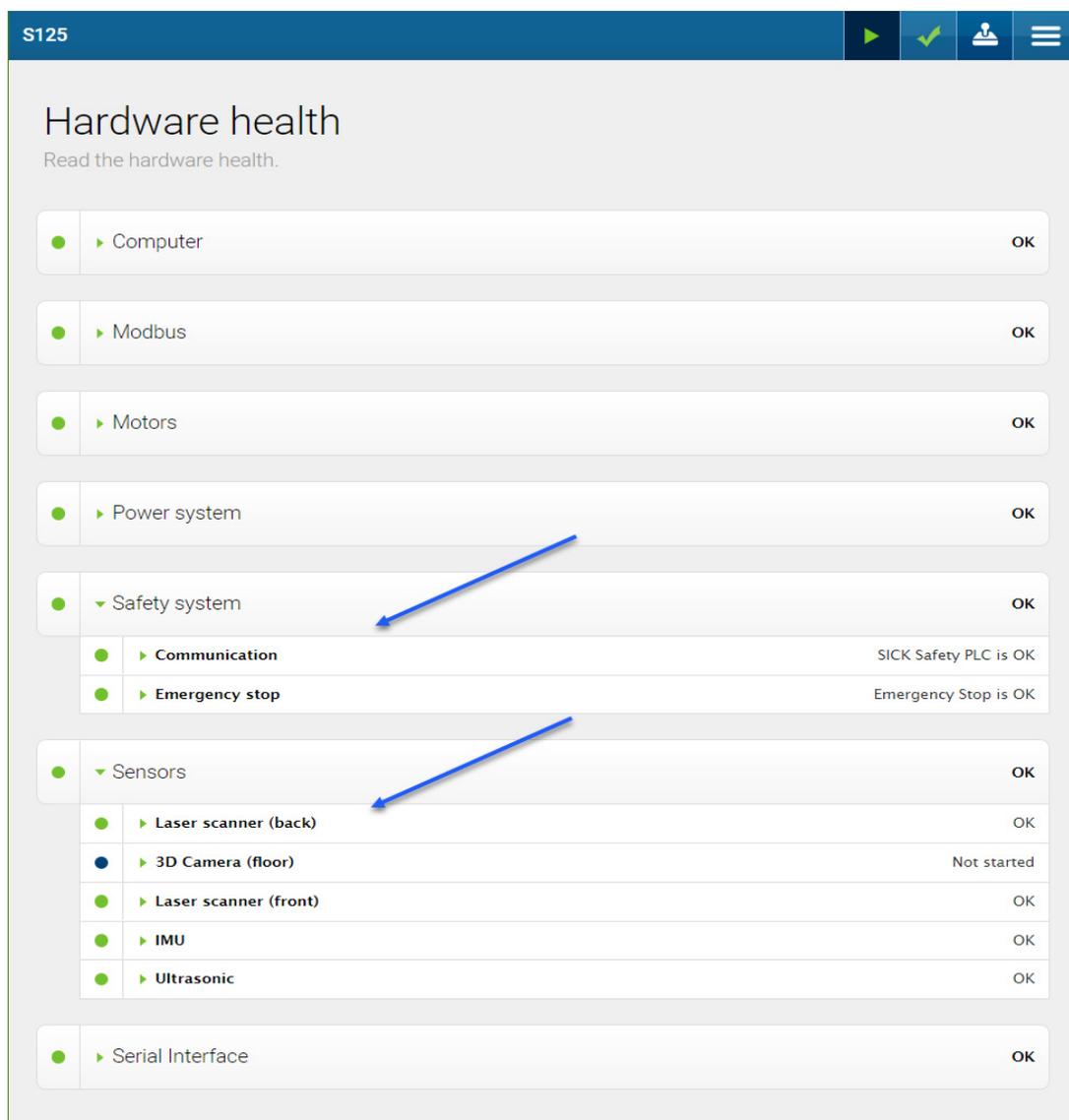
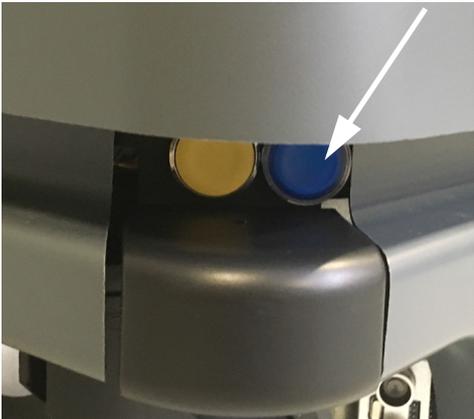


Figure 2.1. Extract of **Hardware Health** menu. Message: OK indicates that the components of the group are OK.

## Shutting down the robot

Follow these steps to shut down the robot correctly.

Step	Action	
4	<p>Bring the robot to a halt. Then push the blue on/off switch to turn off the robot. The light switches to yellow fading light during shut-down.</p> 	<p> <b>NOTICE!</b> Wait for the light on the robot to turn off. This means that there is no more power going to the robot.</p>

**Note** If shutting the robot down for transportation or service/repair, the battery disconnect switch must be turned off, see MiR200 User Guide.

## General safety notes



- **Ensure proper mounting of loads during transport**  
Danger of personal injury from overturning robot or falling load.  
All accessories and loads mounted on top of the robot should be fastened correctly and meet specifications.
- **Avoid leakage of fluid during transport**  
Danger of personal injury from leaking fluid.  
Make sure that loads containing fluids do not leak during transport.
- **Use only the original charger**  
Danger of personal injury and/or damage to the robot.  
Use of other charger than the one supplied by the manufacturer can ruin the battery and may cause fire.
- **Update maps to avoid hazards on the route**  
Danger of personal injury and/or damage to the robot.  
Make sure to update maps to avoid driving in hazardous zones such as close to stairways.
- **Do not drive vehicle irresponsibly**  
Danger of personal injury and/or damage to the robot.  
The robot should not be driven over edges or in other ways operated irresponsibly.



- **Do not use the robot to transport people**  
Risk of personal injury and/or damage to the robot.  
The robot should never be used to transport people. This will revoke compliance with the standard EN 1525 Safety for unmanned trucks.
- **Avoid gradients above 5% on the route**  
Risk of personal injury and/or damage to the robot.  
The surface grade (ramps etc.) cannot exceed 5% as this may cause the robot to skid.
- **Only drive on even and dry surface**  
Risk of personal injury and/or damage to the robot.  
Wet and uneven surfaces may cause the robot to skid.
- **Do not overload the robot**  
Risk of personal injury and/or damage to the robot.  
The maximum payload for the load on top of the robot is 200 kg 440 lbs kg. If exceeded, it may cause overturning, falling load and damage to the robot.
- **Do not use robot on board ships**  
Risk of personal injury and/or damage to the robot.  
Unstable surface caused by moving vessel may cause the robot to skid.
- **Turn off the main power immediately after removal of the top cover**  
Risk of personal injury and/or damage to the robot.  
Turn off main power relay to avoid short circuit.



- **Indoor use only**  
Risk of damage to the robot.  
The robot is made for indoor use only and should never be used outdoor.
- **Avoid small objects on the floor in the robot's area**  
Risk of property damage and/or minor damage to the robot.  
The robot cannot detect objects smaller than 50 mm and may overrun smaller objects.
- **Remove unwanted objects from the floor in the robot's area**  
Risk of inefficient execution of orders.  
The robot will go around objects that are not parts of the map, but this may influence the efficiency of the planned route.
- **Avoid overheating of components**  
Risk of damage to the robot or robot components.  
The ambient temperature in the robot's environment must not exceed 50° C - 122° F.
- **Avoid exposure of the robot to excessively humid or dry environment**  
Risk of damage to the robot or robot components.

## Lithium battery

Lithium batteries are primary power sources with high energy content designed to represent the highest possible degree of safety.



### Potential hazard

Lithium battery packs may get hot, explode or ignite and cause serious injury if they are abused electrically or mechanically.

Observe the following precautions handling and using lithium batteries:

- Shut off the battery when not in use.
- Do not short-circuit, recharge or connect with false polarity.
- Do not expose to temperature beyond the specified temperature range or incinerate the battery.
- Do not crush, puncture or disassemble the battery. The battery contains safety and protection devices, which, if damaged, may cause the battery to generate heat, explode or ignite.
- Do not allow the battery to get wet.
- In the event the battery leaks and the fluid gets into one's eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated, the battery fluid could cause damage to the eye.
- Use only the original charger and always follow the instructions from the battery manufacturer.

Lithium battery



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