

Date	October 6, 2020
Label	Lithium batteries, 24 V and 48 V
Product	MiR100, MiR200, MiR500, MiR1000
Released by	Odin Skovsted

FAQ for SAFETY NOTICE: Lithium batteries, 24 V and 48 V

This document answers commonly asked questions regarding the Safety notice on Lithium batteries, 24 V and 48 V. This information is intended for MiR partners, distributors, integrators, and end customers.

General information and communication

Question: *Is this a recall of the batteries or potentially affected batteries? Should an immediate stop use notice be sent to customers?*

Answer: No. This is not a recall, nor does it require an immediate stop use notice. This safety notice requests preventative action until a long-term solution is determined.

Question: *How many batteries are thought to be affected by this issue?*

Answer: Less than 5% of batteries are thought to be affected.

Question: *Who is responsible for carrying out the preventative actions (following the instructions)? Can we ask MiR to do the test and potentially replace the battery?*

Answer: It is the responsibility of MiR customers (those having MiR products) to carry out the preventative actions; however MiR's distributors are responsible for notifying their customers and handling replacement battery orders.

Question: *How is MiR ensuring that this safety notice is distributed?*

Answer: MiR's distributors and partners will circulate the safety notice and inform MiR that they have done so.

Question: *How is MiR addressing potential questions?*

Answer: MiR customers who have questions should first check the FAQ on the [MiR website](#). For further questions, they can reach out to their distributors or send an email to safetynotices@mir-robots.com.

Question: *What immediate actions are partners and distributors required to complete?*

Answer: Share the safety notice to inform your MiR customers and help them understand the preventative actions required.

Question: *Is there a deadline for communicating this to MiR end customers?*

Answer: Sending the communication needs to be viewed as a high priority.

Question: *Does MiR have a long-term solution ready?*

Answer: A firmware update is expected by the end of October.

Question: *Can new batteries be sent out in advance so they can be replaced as soon as the test is made?*

Answer: No, we cannot send out batteries in advance.

Question: *How long will it take to receive a new battery?*

Answer: Batteries are ready to be sent out immediately if a verified problem is identified. It's important to send in error logs so the issue can be verified.

Question: *Can we request additional batteries as a backup?*

Answer: We cannot provide backup batteries, but spare batteries can be purchased.

Question: *What happens if a battery doesn't pass the test and a replacement battery isn't available?*

Answer: MiR urges that the robot be taken out of service until the battery can be replaced.

Question: *Should the old battery be discarded or returned?*

Answer: MiR asks you to store the battery for three months before disposal. You might be asked to return it to MiR and will be contacted in this case. Dispose of the battery in accordance with local, state, and federal laws and regulations.

Technical

Question: *Does performing the discharge test increase the risk of battery failure?*

Answer: No, the test is not destructive, and therefore there is no risk.

Question: *Is there an increased risk of fire if the cell imbalance readings are close to the threshold?*

Answer: A conservative threshold is defined. As a result, it is safe to continue using the battery if readings are within the defined acceptable threshold. This is a recommended preventative action until a long-term solution for existing robots is determined.

Question: *Is MiR250 affected by this safety notice?*

Answer: No. The battery in MiR250 is from a different manufacturer and has a different design.

Question: *Why are some batteries affected or potentially affected while others are not?*

Answer: MiR is working diligently to fully understand the risk and causes, including contributing elements. It is MiR's understanding that batteries NOT included in the safety notice won't be affected.

Question: *Is there a risk assessment document available?*

Answer: No. The result of the risk assessment is that the listed serial numbers have the potential (after deep discharge) to overheat and in rare cases catch fire.

Question: *How was this weakness in the battery discovered? Have there been any incidents?*

Answer: Yes. A battery overheated and caught fire. There were no injuries reported.

Question: *Is the issue limited to specific regions?*

Answer: The issue is not region-specific. It is linked to a feature in the battery that has not been implemented satisfactorily.

Question: *Which part of the battery is affected (BMS firmware, cells etc.)?*

Answer: The full root cause is yet to be determined. MiR cannot provide more details at this time.

Question: *Is the risk of batteries catching fire dependent on the charger used?*

Answer: There is nothing that indicates that it is dependent on the type of charger.

Question: *The identification is based on the robot S/N. How can a single battery outside the robot be identified?*

Answer: The how-to article *How to check the battery MiR100/MiR200/MiR500/MiR1000* describes how affected batteries can be identified.

Question: *What is the risk for batteries that have not been discharged to an under-voltage state?*

Answer: In all cases, MiR recommends following the steps listed in the safety notice.

Question: *What are the risks of the battery catching fire while the robot is operating? Will the fire only occur during charging?*

Answer: The risk is present during charging and shortly after.

Question: *How do you know if the robot is in deep discharge?*

Answer: The robot will auto-shut down (the robot computer will shut down by itself) below a certain voltage level.

Question: *At which battery percentage does the robot auto-shut down?*

Answer: The robot shuts down 10 minutes after reaching 23 V, at approximately 3%.

Question: *If the robot auto-shuts down due to low power, how or how long can the robot be used for?*

Answer: On next start-up, the robot will shut down again after 10 minutes unless it is charged.

Question: *What if the robot cannot be powered up again after discharging?*

Answer: First, unplug any application that is connected to the robot. If the robot still can't be turned on, then the battery needs to be replaced.

Question: *What should be done if an error log can't be generated because the robot could not be powered up after discharge?*

Answer: Explain the situation in a Technical Support request so we can organize a replacement battery.

Question: *Can the battery check be performed when the battery level is at 10% rather than 0%?*

Answer: We recommend discharging the battery completely until the robot auto-shuts down.