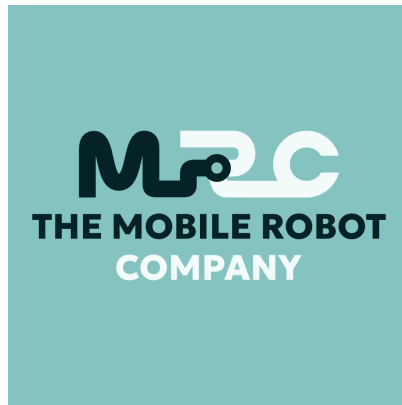




# The Mobile Robot Company

Knowledge Center — Navigation Problems · 2026-08-04

<https://info.mobilerobot.com/support/troubleshooting/navigation-problems>

# Navigation Problems

The J1600 navigates with [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (simultaneous localization and mapping) on an industrial NVIDIA Jetson AI computer. It builds and continuously updates a three-dimensional map of the facility while an operator drives it manually, then plans its own routes to saved destinations — without tracks, wires, reflectors, or other building modifications. When navigation misbehaves, check the points below.

## The layout has changed

The robot updates its understanding of the environment continuously during manual driving. After a major [layout change](https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes/) — moved racking, new walls, relocated work cells — drive the robot manually through the changed area so it can refresh its map. Everyday changes such as parked pallets and moving people are handled by obstacle avoidance and do not require remapping. See [Mapping problems](https://info.mobilerobot.com/support/troubleshooting/mapping-problems/).

## The route is blocked

The J1600 detects obstacles and routes around them in dynamic environments. If a route is fully blocked, [clear the obstruction](https://info.mobilerobot.com/support/troubleshooting/obstacle-or-safety-field-stops/) or take over manually with the tiller — improvising a path through a [crowded floor](https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/) is exactly the kind of judgment the operator keeps in a [dual-mode](https://info.mobilerobot.com/products/j1600/dual-mode/) vehicle.

Preferred travel zones can be defined so the robot favors safer routes through production areas.

## The floor is outside specification

Autonomous driving assumes an [indoor, level floor](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/):

| Condition                       | Limit                    |
|---------------------------------|--------------------------|
| Gradeability, automatic mode    | 0° / 0%                  |
| Maximum traversable bump height | 25 mm / 1 in             |
| Maximum traversable gap width   | 20 mm / 0.8 in           |
| Floor flatness/levelness        | TR34 FM3 (FF 25 / FL 20) |

Slopes and dock plates are handled in [manual mode](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>), where gradeability is 5% unloaded and 3% at full load.

## The environment is outside specification

The J1600 is rated IP21 and operates at 5–40 °C (41–104 °F) with 20–80% non-condensing relative humidity. Cold stores, outdoor yards, and wet areas fall outside the [operating envelope](https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/) (<https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/>). See the full [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).

## Still misbehaving

If navigation problems persist on a compliant floor with a current map, contact support — see [Submit a support request](https://info.mobilerobot.com/support/contact/submit-a-support-request/) (<https://info.mobilerobot.com/support/contact/submit-a-support-request/>).