



The Mobile Robot Company

Knowledge Center — Braking · 2026-08-04

<https://info.mobilerobot.com/safety-compliance/safety-functions/braking>

Braking

The braking system is one of the J1600's certified safety functions. It is rated **Performance Level d (PL d)** (<https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/>) — the highest level assigned to any J1600 safety function.

Role in the safety architecture

Braking is the reaction layer of the [safety architecture](https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/>): when a safety function demands a stop — [a person detected in the protective field](https://info.mobilerobot.com/support/troubleshooting/obstacle-or-safety-field-stops/) (<https://info.mobilerobot.com/support/troubleshooting/obstacle-or-safety-field-stops/>), an emergency-stop input, or a takeover — the certified braking system halts the vehicle. It works together with:

- the independent safety controller;
- the safety-certified driving-speed encoder and driving-direction encoder;
- the two safety-certified motor controllers;
- [speed monitoring and control](https://info.mobilerobot.com/safety-compliance/safety-functions/speed-monitoring/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/speed-monitoring/>) (PL c), which supervises how fast the vehicle is allowed to travel.

The 360-degree protective field supports both forward and reverse autonomous travel, so certified stopping applies in both travel directions. The vehicle's top speed is 5.4 km/h (1.5 m/s), and the protective field expands at higher speeds to preserve reaction margin — see [Safety-field adjustment](https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/>).

Triggers

- [Person detection](https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/>) in the 360-degree safety field (PL d).
- Any of the three emergency-stop buttons (PL d) or the [tiller-position emergency-stop switch](https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/>).
- The belly button, which stops and reverses the vehicle.

See [Emergency stops and manual takeover](https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/>) for the full set of stop controls.

i PRELIMINARY SPECIFICATION

The January 2026 Performance Levels are preliminary and subject to change. This page does not give stopping distances or safety-distance curves; base deployment decisions on the current product documentation.