



The Mobile Robot Company

Knowledge Center — ISO 13849-1 · 2026-08-04

<https://info.mobilerobot.com/safety-compliance/standards/iso-13849-1>

ISO 13849-1

EN ISO 13849-1:2023 is the machinery standard behind the Performance Levels (PL) assigned to the J1600's safety functions. It appears in the J1600's [compliance list](https://info.mobilerobot.com/safety-compliance/certificates/compliance-statements/) (<https://info.mobilerobot.com/safety-compliance/certificates/compliance-statements/>).

What the standard covers

ISO 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*, defines how the parts of a control system that perform safety functions must be designed and evaluated. Its core concept is the **Performance Level**: a measure of how reliably a safety function can be expected to perform, running from PL a (lowest) to PL e (highest). The required level for each function follows from the severity of possible injury, the frequency of exposure, and the possibility of avoiding the hazard.

How it applies to the J1600

The J1600's product documentation assigns Performance Levels to nine safety functions:

Safety function	Performance Level
Braking system	PL d
Emergency-stop button	PL d
Person detection in safety field	PL d
Safety-field size adjustment	PL d
Speed monitoring and control	PL c
Automatic/manual mode selection	PL c
Tiller-position detection	PL c
Load detection	PL b
Charging-current relay	PL b

The functions that protect people directly — [braking](https://info.mobilerobot.com/safety-compliance/safety-functions/braking/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/braking/>), emergency stop, [person detection](https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/>), and [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/>) — carry the highest assigned level, PL d. Each function is described in detail under [Performance Levels](https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/>) and the surrounding safety-function pages.

The levels apply to individual safety functions within the [safety architecture](https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/>); they are not a statement that every subsystem shares the same PL.

Relationship to other standards

ISO 13849-1 defines *how reliable* a safety function must be; product standards such as [ISO 3691-4](https://info.mobilerobot.com/safety-compliance/standards/iso-3691-4/) (<https://info.mobilerobot.com/safety-compliance/standards/iso-3691-4/>) define *which* safety functions a driverless industrial truck needs. The risk assessment that connects hazards to required Performance Levels follows the method of [ISO 12100](https://info.mobilerobot.com/safety-compliance/standards/iso-12100/) (<https://info.mobilerobot.com/safety-compliance/standards/iso-12100/>).

PRELIMINARY COMPLIANCE LIST

The Performance Levels above come from the preliminary January 2026 product documentation and are subject to change. No [certificates](https://info.mobilerobot.com/safety-compliance/certificates/) (<https://info.mobilerobot.com/safety-compliance/certificates/>) or test reports are published here; use current product documentation for deployment decisions.