



# The Mobile Robot Company

Knowledge Center — System Integrator Technical Guide · 2026-08-04

<https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide>

# System Integrator Technical Guide

This guide orients system integrators who plan to deploy the [J1600 self-driving pallet jack](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>), either as a standalone unit or as part of a larger automation system. It summarizes the platform, the two software levels, the available integration interfaces, and the site conditions to verify before a project starts.

## The platform at a glance

| Area                   | What the J1600 provides                                                                                                |
|------------------------|------------------------------------------------------------------------------------------------------------------------|
| Navigation             | 3D LiDAR SLAM (simultaneous localization and mapping) on an industrial NVIDIA Jetson AI computer                       |
| Mapping                | Continuous environmental learning while an operator drives; no tracks, wires, reflectors, or building modifications    |
| Safety                 | Independent safety controller, two 2D safety LiDARs, 360-degree speed-dependent protective field, certified components |
| Operator interface     | 15-inch multi-touch HMI, LED start/resume button, three-position key switch, tiller                                    |
| Connectivity           | Wi-Fi optional for basic use; no mandatory IT integration                                                              |
| Integration interfaces | VDA 5050 and REST API (Advanced software), Fleet Manager                                                               |

[The navigation stack and the safety stack are separate](https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/>): the 3D LiDAR and RGB AI camera serve [navigation and obstacle avoidance](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>), while personnel protection uses two dedicated 2D safety LiDARs and certified components. See [how J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/>).

## Decide whether integration is needed at all

The J1600 is designed to work out of the box. A single robot running [teach-and-repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) tasks needs no warehouse management system (WMS), no fleet manager, and [no network connection](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/). Treat [systems integration as an option for scaling](https://info.mobilerobot.com/applications/results/lower-integration-complexity/), not a prerequisite — many deployments never need it. The [integration overview](https://info.mobilerobot.com/documentation/technical-integration/integration-overview/) maps the options.

## Software levels

One J1600 hardware platform supports [two software versions](https://info.mobilerobot.com/products/software/software-comparison/):

|               | Standard software                        | Advanced software                               |
|---------------|------------------------------------------|-------------------------------------------------|
| Focus         | Essential functions, maximum ease of use | Systems integration and fleet scale-up          |
| Task creation | Configuration-free teach and repeat      | Teach and repeat plus advanced mission planning |
| Interfaces    | Touchscreen only                         | VDA 5050, REST API                              |
| Fleet         | Single unit                              | Fleet Manager, multi-robot orchestration        |
| Connectivity  | Wi-Fi optional                           | Required for connected functions                |

The [Advanced software upgrade](https://info.mobilerobot.com/products/software/advanced-software/) costs €14,500. It is easiest to install at the factory when the robot is ordered; a partner can perform it later, but the customer cannot perform the upgrade themselves. Plan the software level during specification, not after delivery.

## Integration interfaces

- [VDA 5050](https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) — full support for the interoperability interface that lets robots

from different vendors run under one compatible fleet layer.

- **REST API** (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>) — software interface for integrating the J1600 with other software and equipment.
- **Fleet Manager** (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>) — per-robot software for orchestrated multi-robot deployments, €6,500 per robot.
- **External system integration** (<https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/>) — approaches for connecting the J1600 to WMS, equipment, and site software.

## Site prerequisites to verify

Autonomous operation is an indoor, [level-floor application](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (<https://info.mobilerobot.com/documentation/installation/floor-requirements/>). Verify these limits during the feasibility phase:

| Parameter                    | Requirement                                                                                 |
|------------------------------|---------------------------------------------------------------------------------------------|
| Gradeability, automatic mode | 0° / 0% — level floors only                                                                 |
| Floor flatness/levelness     | TR34 FM3 (FF 25 / FL 20)                                                                    |
| Maximum traversable bump     | 25 mm / 1 in                                                                                |
| Maximum traversable gap      | 20 mm / 0.8 in                                                                              |
| Operating temperature        | 5–40 °C / 41–104 °F                                                                         |
| Relative humidity            | 20–80%, non-condensing                                                                      |
| Ingress protection           | IP21 — indoor use                                                                           |
| Load carriers                | Open-base, forkable, within 1,250 × 1,250 mm including overhang, load height up to 1,700 mm |

Pallet pickup is always manual, and autonomous pallet delivery is at floor level. Ramps, dock plates, and slopes remain manual-mode tasks.

### **PRELIMINARY SPECIFICATIONS**

The January 2026 [specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>) are preliminary and subject to change. Confirm current figures against the latest product documentation before finalizing a design.

## Commissioning services

A fixed-price [installation and commissioning package](https://info.mobilerobot.com/products/buying-and-deployment/installation-and-commissioning/) (<https://info.mobilerobot.com/products/buying-and-deployment/installation-and-commissioning/>) (€10,000 end-user list) covers pre-installation feasibility, [risk assessment](https://info.mobilerobot.com/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/safety-compliance/safe-deployment/site-risk-assessment/>) and project planning, setup of up to 25 [drop points](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/) (<https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/>), task and safety validation, [operator training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/documentation/getting-started/operator-training/>), monitoring, acceptance testing, and handover over five days. Available add-ons include integration with other software and equipment, additional validated drop points, and Fleet Management System setup.

On-site engineering support costs €2,400 per day plus travel.

## Getting help

Route technical questions through your local partner or [hello@mobilerobot.com](mailto:hello@mobilerobot.com). The support portal accepts tickets and device-log uploads, and the robot's Help/Support menu provides a QR code for sending technical requests directly. Partners can consult [integration troubleshooting](https://info.mobilerobot.com/documentation/technical-integration/integration-troubleshooting/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-troubleshooting/>).