



The Mobile Robot Company

Knowledge Center — Operating Scenarios · 2026-08-04

<https://info.mobilerobot.com/category/operating-scenarios>

Operating Scenarios

The task patterns and day-to-day operating situations the J1600 supports, from manual pickup with autonomous delivery to automatic charging and exception handling.



Manual Pickup and Autonomous Delivery

The J1600's core operating pattern step by step — pick the pallet manually, create the task on the touchscreen, confirm autonomous mode, and let the robot deliver.



Deliver and Return

The J1600's boomerang task — autonomous delivery to a saved point followed by an automatic return to the origin or operator, ideal for repetitive feeding loops.



Deliver and Wait

The J1600's drop-and-wait task — the robot delivers the pallet at floor level and remains at the destination until the operator gives it new work.



Deliver and Park

The J1600's deliver-and-park task — after the floor-level drop, the robot proceeds to a defined parking location, keeping floors clear between jobs.



A-to-B-to-C Transport

The J1600's simple ABC task — deliver a pallet from A to B, then continue autonomously to C, chaining saved locations into a flow.



Come-to-Me

Calling the J1600 to your location from a mobile app or web interface — the come-to-me function turns the robot into on-demand transport.



Automatic Charging

How the J1600 charges itself at the optional automatic charging station, plus manual charging, battery drain and charge rates, and list prices for both chargers.



Temporary Location Setup

Adding a new J1600 destination in minutes — drive to the point, tap Save Location, name it, and start sending pallets. No code, no limit on saved locations.



Dynamic Route Changes

How the J1600 handles route changes — it plans its own paths between saved points, routes around new obstacles, and lets operators re-teach destinations in minutes.



Mixed Manual and Autonomous Work

Running the J1600 as one tool for both jobs — manual pallet-jack work and autonomous transport in the same shift, with instant handover in both directions.



Operation in Crowded Environments

How the J1600 operates safely among people and traffic — 360-degree protective field, speed-dependent safety zones, blue light indication, and manual takeover.



Handling Exceptions and Irregular Loads

The exceptions the J1600 leaves to people by design — damaged pallets, unstable loads, wrap snags, misplaced pallets, dock plates, congestion, and urgent changes.

Manual Pickup and Autonomous Delivery

Every J1600 task follows the same core pattern: a person picks up the pallet manually, and the robot delivers it autonomously. Pickup is always manual — that is where judgment lives — and autonomous delivery is always at floor level. This page walks through the pattern that every other scenario builds on.

The workflow

1. Manually pick up a supported pallet or load carrier, [using the tiller](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>), like a conventional electric pallet jack.
2. Open task creation on the 15-inch touchscreen.
3. Choose the task type and the saved drop destination.
4. Choose what happens after delivery: return to origin, go to another point or parking, or stop and wait.
5. Execute the task.
6. The robot asks to [enter automatic mode](https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/>); confirm with the physical LED start/resume button.
7. The interface instructs you to step away. Do so.
8. The J1600 [travels autonomously](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>), avoids obstacles, drops the pallet at floor level, and follows the selected post-delivery action.

The route can be a few meters or well over 100 meters — the concept is identical.

Mode indication and control

- White lights indicate manual mode; in automatic mode, blue light strips display the protected area around the vehicle.
- A [three-position key switch](https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/>) selects power off, manual only, or automatic mode.
- Grab or move the tiller at any time to take back manual control immediately. Emergency-stop buttons and the tiller-position switches stop the vehicle — 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/>).

Why pickup stays manual

Fork placement, load stability, pallet condition, and tight approaches are judgment work. Keeping them manual is what lets the J1600 skip the integration, infrastructure, and controlled processes that full automation needs — the reasoning behind [dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) (<https://info.mobilerobot.com/products/j1600/dual-mode/>) and [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/) (<https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/>). Loads that need extra care get the treatment in [Sensitive or Unstable Loads](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>).

How quickly a new operator learns this

[Training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/documentation/getting-started/operator-training/>) takes about 30 minutes for someone who already operates an electric pallet jack. At a public test event, [a first-time user drove the J1600 manually](https://info.mobilerobot.com/applications/customer-stories/video-case-stories/) (<https://info.mobilerobot.com/applications/customer-stories/video-case-stories/>), saved a location, created a drop-and-return task, confirmed automatic mode, and watched the robot navigate around people — on first contact with the machine.

Variations on the pattern

The post-delivery choice in step 4 is what differentiates the [named task patterns](https://info.mobilerobot.com/documentation/user-guides/task-management/) (<https://info.mobilerobot.com/documentation/user-guides/task-management/>):

- [Deliver and Return](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>) — the most common task
- [Deliver and Wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/>)
- [Deliver and Park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-park/>)
- [A-to-B-to-C Transport](https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/) (<https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/>)
- [Come-to-Me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>) — the robot comes to you first

Destinations are created as described in [Temporary Location Setup](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>). For the machine's full capabilities, see the [J1600 overview](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>).

Deliver and Return

Deliver and return — also called the **boomerang** task — sends the J1600 to a saved destination, drops the pallet at floor level, and brings the vehicle straight back to the origin or operator. It is the most commonly performed and demonstrated J1600 task, because it turns one operator plus one robot into a continuous loop.

How it works

1. Pick up the pallet manually.
2. Choose the saved drop destination on the touchscreen.
3. Choose **return to origin/operator** as the post-delivery behavior.
4. Confirm automatic mode with the start button and step away.
5. The robot delivers, drops at floor level, and returns empty to where it started.

While the robot is out, the operator prepares the next pallet. When it returns, the next cycle starts immediately — drop, go, repeat. The full task mechanics are described in [Manual Pickup and Autonomous Delivery](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>).

Where the loop fits

The boomerang suits any flow where pallets keep leaving the same place:

- **Inbound receiving** (<https://info.mobilerobot.com/applications/use-cases/inbound-receiving/>): the operator stays at the trailer; the robot shuttles each pallet to inspection or storage and comes back.
- **Production supply** (<https://info.mobilerobot.com/applications/use-cases/production-supply/>): the kitting or supermarket operator loads; the robot feeds the line and returns.
- **Production-to-shipping** (<https://info.mobilerobot.com/applications/use-cases/production-to-shipping-transport/>): the line-end operator keeps packing while finished pallets flow to staging.
- **Buffer feeding** (<https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/>): a steady loop keeps a buffer at level without anyone walking.

The longer the leg, the more [walking](https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/) each loop removes — the route can be a few meters or well over 100 meters.

Behavior on the way

On both the loaded outbound leg and the empty return, the robot navigates with [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) at up to 5.4 km/h, avoids obstacles, and protects its surroundings with a speed-dependent 360-degree safety field shown by blue light strips. The 2D safety LiDARs and certified safety functions support both forward and reverse travel — see [Operation in Crowded Environments](https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/).

Alternatives

If the vehicle should stay at the destination instead of returning, use [Deliver and Wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/). If it should clear the floor after the last drop, use [Deliver and Park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/). To chain a second leg instead of returning, use [A-to-B-to-C Transport](https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/).

Deliver and Wait

Deliver and wait — also called **drop and wait** — sends the J1600 to a saved destination, drops the pallet at floor level, and keeps the vehicle standing at that point until someone gives it a new task. Use it when the work continues at the destination, or when the next move is not yet known.

How it works

1. Pick up the pallet manually.
2. Choose the saved drop destination on the touchscreen.
3. Choose **Stop and wait** as the post-delivery behavior.
4. Confirm automatic mode with the start button and step away.
5. The robot delivers, drops, and waits at the destination.

From there, anyone at the destination can start the next task from the touchscreen, or simply take the tiller and continue manually — the handover works in both directions. See [Manual Pickup and Autonomous Delivery](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) for the base workflow and [Mixed Manual and Autonomous Work](https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/) (https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/) for the mode change.

A demonstrated example

In a [public tutorial](https://info.mobilerobot.com/newsroom/videos/how-to-videos/) (https://info.mobilerobot.com/newsroom/videos/how-to-videos/), a location was saved and named `pallet1` ("Pallet Bay 1"), a task was created with **Drop Pallet at Location** and stop-and-wait selected, automatic mode was confirmed, and the robot delivered and stayed put. Creating the location and the task took minutes — see [Temporary Location Setup](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/).

When waiting beats returning

- **Staging lanes:** the pallet may need repositioning once the lane fills — keep the vehicle where the action is. See [Buffer and Staging Management](https://info.mobilerobot.com/applications/scenarios/staging-management/) (https://info.mobilerobot.com/applications/scenarios/staging-management/).

[obot.com/applications/use-cases/buffer-and-staging-management/](https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/)).

- **Handovers between teams:** the receiving team sends; the production team takes over the waiting vehicle at their end.
- **One-way flows:** when nobody is left at the origin, returning empty would waste the trip.
- **Uncertain next steps:** in changing flows such as [cross-docking](https://info.mobilerobot.com/applications/use-cases/cross-docking/) (<https://info.mobilerobot.com/applications/use-cases/cross-docking/>), the next origin is often decided after the drop.

If the vehicle should come back for the next pallet instead, use [Deliver and Return](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>). If it should clear the area after the drop, use [Deliver and Park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-park/>) or chain a leg with [A-to-B-to-C Transport](https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/) (<https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/>). A waiting robot can also be summoned from elsewhere with [Come-to-Me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>).

While it waits

A waiting J1600 draws [approximately 2% battery per hour in standby](https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/>), so parking it at a destination between tasks costs little runtime. For charge management across a shift, see [Automatic Charging](https://info.mobilerobot.com/applications/scenarios/automatic-charging/) (<https://info.mobilerobot.com/applications/scenarios/automatic-charging/>).

Deliver and Park

Deliver and park completes the drop and then sends the J1600 to a defined parking location. Use it at the end of a run, between shifts, or whenever the vehicle should clear the working area instead of standing at the destination or returning empty.

How it works

1. Pick up the pallet manually.
2. Choose the saved drop destination on the touchscreen.
3. Choose **go to parking** as the post-delivery behavior.
4. Confirm automatic mode with the start button and step away.
5. The robot delivers, drops at floor level, and drives itself to the parking location.

The parking spot is a [saved location](https://info.mobilerobot.com/documentation/user-guides/location-management/) like any other — created once by driving there and tapping **Save location**. See [Temporary Location Setup](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) and the base workflow in [Manual Pickup and Autonomous Delivery](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/).

Why park

- **Clear floors:** staging lanes, dock areas, and line-side spaces stay free of an idle vehicle — useful in the crowded conditions described in [Operation in Crowded Environments](https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/).
- **Predictable pickup point:** the next operator always knows where the machine is.
- **End-of-shift discipline:** the last task of the day ends with the vehicle parked, not abandoned mid-floor.
- **Charging:** park near the charger for a manual plug-in during breaks, or combine parking behavior with an automatic charging station so idle time becomes charge time — see [Automatic Charging](https://info.mobilerobot.com/applications/scenarios/automatic-charging/).

A parked J1600 draws approximately 2% battery per hour in standby (<https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/>).

Calling it back

A parked robot does not need to be fetched on foot. With the come-to-me function, call it to your location from a mobile app or web interface — see [Come-to-Me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>). Otherwise, any operator can walk over, take the tiller, and start the next task.

Alternatives

To keep a loop running, use [Deliver and Return](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>). To keep the vehicle at the destination, use [Deliver and Wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/>). Parking can also be the final leg of a chained task — see [A-to-B-to-C Transport](https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/) (<https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/>).

A-to-B-to-C Transport

The **simple ABC** task delivers a pallet from A to B and then sends the J1600 onward to a third point, C. It is the building block for chained flows: the vehicle ends each job where the next one starts, instead of returning to where the last one began.

How it works

1. Pick up the pallet manually at A.
2. Choose saved destination B on the touchscreen.
3. Choose **go to another point** as the post-delivery behavior and select C.
4. Confirm automatic mode with the start button and step away.
5. The robot delivers at B, drops at floor level, and continues empty to C.

C can be anything useful: the next pickup area, a parking spot, or a charging station. See [Manual Pickup and Autonomous Delivery](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>), for the base workflow.

What ABC unlocks

- **Chained flows:** warehouse to line, then onward to the next pickup — the robot pre-positions itself where work continues. See [Warehouse-to-Production Transport](https://info.mobilerobot.com/applications/use-cases/warehouse-to-production-transport/) (<https://info.mobilerobot.com/applications/use-cases/warehouse-to-production-transport/>).
- **Two-ended operations:** deliver finished goods to shipping, then continue to the receiving area where inbound work is waiting — one vehicle serving both flows. See [Production-to-Shipping Transport](https://info.mobilerobot.com/applications/use-cases/production-to-shipping-transport/) (<https://info.mobilerobot.com/applications/use-cases/production-to-shipping-transport/>), and [Inbound Receiving](https://info.mobilerobot.com/applications/use-cases/inbound-receiving/) (<https://info.mobilerobot.com/applications/use-cases/inbound-receiving/>).
- **Repositioning without walking:** whoever needs the vehicle next does not fetch it; it arrives.
- **Charging in the flow:** end a run at the automatic charging station so idle minutes become charge — see [Automatic Charging](https://info.mobilerobot.com/applications/scenarios/automatic-charging/) (<https://info.mobilerobot.com/applications/scenarios/automatic-charging/>).

Points, not routes

A, B, and C are [saved locations](https://info.mobilerobot.com/documentation/user-guides/location-management/) (<https://info.mobilerobot.com/documentation/user-guides/location-management/>), and any saved location can play any role in any task. Because the J1600 plans its own route between points with [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>), ten locations already support every A-B-C combination among them — nothing is taught per combination. This is the same property behind [Multi-Point Pallet Transport](https://info.mobilerobot.com/applications/use-cases/multi-point-pallet-transport/) (<https://info.mobilerobot.com/applications/use-cases/multi-point-pallet-transport/>) and [cross-docking](https://info.mobilerobot.com/application/s/use-cases/cross-docking/) (<https://info.mobilerobot.com/application/s/use-cases/cross-docking/>); creating the points takes minutes each, per [Temporary Location Setup](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>).

Alternatives

- Vehicle should come back to A: [Deliver and Return](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>).
- Vehicle should stay at B: [Deliver and Wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/>).
- C is specifically the parking location: [Deliver and Park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-park/>).
- The robot should come to a person on demand: [Come-to-Me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>).

Come-to-Me

Come-to-me reverses the usual direction of a task: instead of sending the robot away with a pallet, you call it to where you are. The request comes from a mobile app or web interface, and the J1600 drives itself to you — no one walks across the building to fetch it.

How it works

1. Open the mobile app or web interface.
2. Call the robot to your location.
3. The J1600 plans its route with [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>), drives over autonomously, and arrives ready for work.
4. Take the tiller for manual pickup, or create the next task on the touchscreen.

Come-to-me is an **advanced automation** function, alongside [automatic charging](https://info.mobilerobot.com/applications/scenarios/automatic-charging/) (<https://info.mobilerobot.com/applications/scenarios/automatic-charging/>), [VDA 5050](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (<https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/>), fleet management, and [API integrations](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>). Basic automation — on-screen tasks, saved locations, autonomous floor drop, return-to-me, and parking — works without it. See the [J1600 overview](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>) for the capability levels.

What it changes on the floor

- **Pull-based replenishment:** a line-side worker calls the robot when material is needed; the warehouse loads it; the line receives it. See [Production Supply](https://info.mobilerobot.com/applications/use-cases/production-supply/) (<https://info.mobilerobot.com/applications/use-cases/production-supply/>).
- **No dead-heading on foot:** a robot left waiting or parked elsewhere — after a [Deliver and Wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/>) or [Deliver and Park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-park/>) task — is summoned instead of collected.
- **Shared vehicle, many users:** in a facility with several pickup areas, whoever needs transport next calls it, which suits the one-tool pattern described in [Mixed Manual and Autonomous Work](https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/) (<https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/>).

[-manual-and-autonomous-work/](#)) and [Local Work-Cell Automation](#) (<https://info.mobilerobot.com/applications/use-cases/local-work-cell-automation/>).

On the way to you

The empty vehicle travels like [any autonomous run](#) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>): up to 5.4 km/h, obstacle avoidance, speed-dependent 360-degree safety field with blue light strips showing the protected area. See [Operation in Crowded Environments](#) (<https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/>) and [how J1600 safety works](#) (<https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/>).

Your position must be reachable as a destination on [indoor, level floors](#) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>) — automatic mode has 0% gradeability, so the robot will not climb a ramp to reach you.

Related scenarios

Once the robot arrives, work continues with the standard pattern in [Manual Pickup and Autonomous Delivery](#) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>). Frequently used calling points can be saved as locations for regular tasks too — see [Temporary Location Setup](#) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>).

Automatic Charging

With the optional [automatic charger](https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/) (<https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/>), the J1600 keeps itself charged: it drives to the station, positions itself at the charger, and a charging interface extends to the charging plates on the vehicle. Idle minutes become charge — opportunity charging without anyone plugging in a cable.

How automatic charging works

1. The robot drives to the charging station and positions itself in front of the charger.
2. The charging interface extends from the station to the vehicle's charging plates.
3. Charging runs while the robot is not busy; the vehicle is available for work again when needed.

Automatic charging is an **advanced automation** capability, alongside come-to-me, [VDA 5050](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (<https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/>), fleet management, and [API integrations](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>). When the automatic charger is purchased with the [installation and commissioning package](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>), its setup is part of on-site Day 1.

The [charging-current relay](https://info.mobilerobot.com/safety-compliance/safety-functions/charging-safety/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/charging-safety/>) is a certified safety function rated Performance Level b — 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/>).

Manual charging

Without the automatic station, charging works like any electric pallet jack: plug in the [manual charger](https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/) (<https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/>) during a break or whenever the machine is idle — before lunch, between waves, at shift end. Combining a manual charger with a saved parking spot near it keeps the routine simple — see [Deliver and Park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-park/>).

Battery, drain, and charge rates

Parameter	Value
Battery	24 V, 200 Ah lithium iron phosphate (LiFePO4)
Charging rate	approx. 47 percentage points per hour
Drain, driving fully loaded	approx. 13% per hour
Drain, driving unloaded	approx. 12% per hour
Drain, standby	approx. 2% per hour

Runtime exceeds eight hours in a typical duty cycle. The [drain rates](https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/>) imply roughly 7.7 hours of continuous fully loaded driving or 8.3 hours unloaded, but these are calculated figures — not guaranteed runtimes — before allowing for standby, lifting, duty cycle, battery reserve, and operating conditions. For a single-shift operation, a break-time plug-in or an opportunity-charging station comfortably covers the day.

Fitting charging into task flows

- End a run at the charger with [Deliver and Park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-park/>) or as the final leg of an [A-to-B-to-C task](https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/) (<https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/>).
- A waiting robot ([Deliver and Wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/>)) burns only ~2% per hour, so short waits rarely need a charge stop.
- Call the robot off the charger when work resumes with [Come-to-Me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>).

Charger list prices

Item	End-user list price (2026)
Manual charger	€3,600
Automatic charger	€8,400

Full electrical specifications: [J1600 technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>). For charger questions, see the [product and capabilities FAQ](https://info.mobilerobot.com/support/fag/product-and-capabilities/) (<https://info.mobilerobot.com/support/fag/product-and-capabilities/>).

Temporary Location Setup

Adding a destination to the J1600 takes minutes and no expertise: drive there, tap **Save location**, name it, done. This is the mechanism behind every [flexible use](https://info.mobilerobot.com/applications/results/operational-flexibility/) of the machine — temporary storage, moved staging lanes, new work cells, seasonal areas — because a location that costs minutes to create can be treated as disposable.

Saving a location

1. Use the tiller to drive the J1600 manually to the desired point. It handles like a regular electric pallet jack, and the robot continuously learns and updates its 3D map while you drive.
2. Tap **Save location** on the touchscreen.
3. Name the point — for example `pallet1` or "Pallet Bay 1", as shown in the company's [public tutorial](https://info.mobilerobot.com/newsroom/videos/how-to-videos/).
4. Repeat for as many points as the operation needs.

There is **no software limit** on the number of [saved locations](https://info.mobilerobot.com/documentation/user-guides/location-management/); the practical limit is available floor space.

Using the new location

The point is immediately available in task creation: choose it as a drop destination, pair it with any post-delivery behavior, and execute — the full workflow is in [Manual Pickup and Autonomous Delivery](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/). Because the robot plans routes itself, the new point works with every existing location at once; nothing is retaught pair by pair. See [Dynamic Route Changes](https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes/).

First-time setup is the same operation

[Commissioning a J1600](https://info.mobilerobot.com/documentation/getting-started/first-time-setup/) is this procedure repeated: power on, follow the on-screen tutorial, [drive the](#)

[facility so the robot maps it](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/) (<https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/>), and save each destination. No tracks, wires, reflectors, or building modifications are involved, and [Wi-Fi is optional for basic use](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>). [Typical setup takes hours to one day](https://info.mobilerobot.com/applications/results/faster-deployment/) (<https://info.mobilerobot.com/applications/results/faster-deployment/>). [depending on scope](https://info.mobilerobot.com/applications/planning/deployment-scope-examples/) (<https://info.mobilerobot.com/applications/planning/deployment-scope-examples/>). The optional five-day installation and commissioning package includes creation of up to 25 validated [drop points](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/) (<https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/>) — see the [J1600 overview](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>).

Why operators own this

[Teaching routes](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>) is one of the jobs the company deliberately keeps human: driving to a new point and saving it replaces calling an automation expert to reprogram a map. That is what makes the J1600 practical in [brownfield sites](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (<https://info.mobilerobot.com/applications/use-cases/brownfield-automation/>), [temporary storage](https://info.mobilerobot.com/applications/use-cases/temporary-storage/) (<https://info.mobilerobot.com/applications/use-cases/temporary-storage/>), [changing buffers](https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/) (<https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/>), and [cross-docking lanes](https://info.mobilerobot.com/applications/use-cases/cross-docking/) (<https://info.mobilerobot.com/applications/use-cases/cross-docking/>) — layouts change, and the person on the floor keeps up. It is central to [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/) (<https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/>).

Placement requirements

A drop location must be on the [indoor, level portion of the facility](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>): automatic gradeability is 0%, floors to TR34 FM3, bumps up to 25 mm, gaps up to 20 mm, temperature 5–40 °C. See the [J1600 technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).

Dynamic Route Changes

The J1600 does not follow fixed routes. It navigates to saved points, planning and re-planning its own path with [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>). When the floor changes — an obstacle appears, a lane moves, a whole area is rearranged — the response is automatic re-routing, a minute of [re-teaching](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>), or a human hand on the tiller, depending on the scale of the change.

Three layers of adaptation

1. The robot re-routes itself

The J1600 builds and continuously updates a three-dimensional map of the environment, scanning structures at heights reaching up to 70 m above the vehicle. It detects obstacles and drives around them in dynamic environments, so everyday changes — a pallet left in the aisle, a parked cart — do not require anyone to do anything. 3D mapping is designed for greater precision and reliability than traditional 2D navigation in complex or changing conditions.

Because navigation is point-based, the robot reaches any saved destination without having been taught every possible origin-destination combination. Preferred travel zones can be defined to keep autonomous traffic in safer corridors.

2. The operator re-teaches in minutes

When a destination itself moves — a staging lane shifts, a buffer opens somewhere new — the operator drives to the new point and taps **Save location**. No automation expert, no reprogramming project, no limit on saved locations. See [Temporary Location Setup](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>).

3. The human takes over

For changes that need judgment right now — a blocked area to improvise around, an urgent reprioritization — the operator grabs the tiller and drives. Route changes and crowded-floor improvisation are among the jobs deliberately kept human. See

[Handling Exceptions and Irregular Loads](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/) (<https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/>) and [Mixed Manual and Autonomous Work](https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/) (<https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/>).

No infrastructure to move

Fixed-route automation embeds its routes in the building — tracks, wires, magnets, reflectors. The J1600 uses none of these, so a layout change never means construction work. This is the core of its fit for [brownfield sites](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (<https://info.mobilerobot.com/applications/use-cases/brownfield-automation/>), [cross-docking](https://info.mobilerobot.com/applications/use-cases/cross-docking/) (<https://info.mobilerobot.com/applications/use-cases/cross-docking/>), and [temporary storage](https://info.mobilerobot.com/applications/use-cases/temporary-storage/) (<https://info.mobilerobot.com/applications/use-cases/temporary-storage/>).

Safety while re-routing

Obstacle avoidance belongs to the navigation stack; [personnel protection is separate and certified](https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensor-s-vs-safety-sensors/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensor-s-vs-safety-sensors/>). Two 2D safety LiDARs, an independent safety controller, and a speed-dependent 360-degree protective field guard every route the robot chooses, with [person detection](https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/>) and [braking](https://info.mobilerobot.com/safety-compliance/safety-functions/braking/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/braking/>) assigned Performance Level d. See [Operation in Crowded Environments](https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/) (<https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/>) and [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/>).

Limits

Re-routing happens within the operating envelope: [indoor, level floors](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>) (0% automatic gradeability), bumps up to 25 mm, gaps up to 20 mm, floors to TR34 FM3. No figures are published for minimum aisle width or localization tolerance — for site-specific feasibility, see the [product and capabilities FAQ](https://info.mobilerobot.com/support/faq/product-and-capabilities/) (<https://info.mobilerobot.com/support/faq/product-and-capabilities/>) and the [J1600 technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).

Mixed Manual and Autonomous Work

The J1600 is one vehicle for two kinds of work. In the same shift — often in the same minute — it is a familiar manual pallet jack and an autonomous transporter. Mixing the modes freely, rather than choosing one, is how the machine earns its keep: judgment stays manual, distance goes autonomous.

The two modes

- **Manual mode:** a person controls the tiller and lift functions like a conventional electric pallet jack — nuanced pickup, handling up to 1,600 mm, difficult approaches, [sensitive loads](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>), exceptions. White lights indicate manual mode.
- **Automatic mode:** after the operator selects a saved destination and confirms the [mode change](https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/) (<https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/>), the vehicle [drives itself](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>), drops at floor level, and follows its configured return, park, wait, or continue behavior. Blue light strips show the protected area.

This is [dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) (<https://info.mobilerobot.com/products/j1600/dual-mode/>), the product's defining distinction.

Switching between modes

Into automatic: create or select the task on the touchscreen, execute, confirm with the physical LED start/resume button when the robot asks, and step clear when instructed.

Back to manual: grab or move the tiller — takeover is immediate. Tiller-position switches handle emergency stop and manual control, and a three-position key switch selects power off, manual only, or automatic mode. Safety controls are always available — 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/>).

The full task workflow is in [Manual Pickup and Autonomous Delivery](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>).

A mixed shift in practice

A [receiving](https://info.mobilerobot.com/applications/use-cases/inbound-receiving/) operator's morning might look like this:

1. **Manual:** unload the trailer over the dock plate — [manual mode](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) handles gradients up to 5% unloaded, 3% loaded; automatic mode is level-floor only.
2. **Autonomous:** send each pallet to storage with [deliver and return](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/) while staying at the dock.
3. **Manual:** an awkward, part-damaged pallet gets hand-carried treatment — see [Handling Exceptions and Irregular Loads](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/).
4. **Autonomous:** the last pallet goes out with [deliver and park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/), leaving the vehicle at the charger.

One tool covers the whole sequence — no switching vehicles, no idle specialist machine. This one-tool utilization also suits [local work cells](https://info.mobilerobot.com/applications/use-cases/local-work-cell-automation/) and small teams where the same one to five operators do everything.

Why not full automation

Removing the manual half entirely would require [systems integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/), controlled processes, and expert configuration — and would still stall on the exceptions a person handles in seconds. Keeping the operator in the loop targets most of the [productivity gain](https://info.mobilerobot.com/applications/results/productivity-improvements/) at a fraction of the complexity; the reasoning is laid out in [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/). [Training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) for the mixed role takes about 30 minutes for an existing pallet-jack operator.

Operation in Crowded Environments

Warehouse floors are shared spaces: people walking, pallet jacks crossing, freight staged where it fits. The J1600 is built to run autonomously in this traffic — with a certified protective field around the vehicle — and to hand the really chaotic moments back to a person.

The protective field

- A **360-degree safety field** surrounds the vehicle, supporting both forward and reverse autonomous travel.
- Two **2D safety LiDAR scanners**, front and rear, provide certified [personnel detection](https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/) — [separate from the 3D navigation LiDAR and RGB AI camera](https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/), which belong to the navigation stack.
- The field is **speed-dependent**: it expands as travel speed increases and adjusts as the vehicle slows.
- **Blue light strips** project the current protected area onto the floor, so people nearby can see the zone at a glance. White lights mean the vehicle is in manual mode.

Person detection in the safety field and the [braking system](https://info.mobilerobot.com/safety-compliance/safety-functions/braking/) are rated [Performance Level d](https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/); [safety-field size adjustment](https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/) is also PL d. An independent safety controller, three emergency-stop buttons, a belly button for stop-and-reverse, and certified motor controllers and encoders complete the architecture — see [how J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/).

Navigating around people

At a public test event, [a first-time user sent the J1600 on a delivery](https://info.mobilerobot.com/applications/customer-stories/video-case-stories/) and watched it route around people on its way — standard behavior, not a stunt. The [3D LiDAR SLAM navigation](#)

[ps://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/)) continuously updates its environment model and drives around obstacles, moving or static, at up to 5.4 km/h. Preferred travel zones can be defined to keep autonomous traffic in safer corridors through busy production areas. See [Dynamic Route Changes](https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes/) (<https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes/>).

Before [any autonomous run](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>) starts, the operator [confirms the mode change](https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/>) and the robot instructs them to step away — autonomy never starts by surprise.

When crowded becomes chaotic

There is a difference between traffic and gridlock. An overflowing receiving area with no clear lane is a job for human improvisation: take the tiller — takeover is immediate — and [drive the pallet through manually](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>). Navigating genuinely cluttered floors is one of the jobs deliberately kept human; see [Handling Exceptions and Irregular Loads](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/) (<https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/>) and [Mixed Manual and Autonomous Work](https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/) (<https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/>).

Where this matters most

- [Cross-docking](https://info.mobilerobot.com/applications/use-cases/cross-docking/) (<https://info.mobilerobot.com/applications/use-cases/cross-docking/>) floors with staged freight and constant movement
- [Inbound receiving](https://info.mobilerobot.com/applications/use-cases/inbound-receiving/) (<https://info.mobilerobot.com/applications/use-cases/inbound-receiving/>) during unloading peaks
- [Production areas](https://info.mobilerobot.com/applications/use-cases/production-supply/) (<https://info.mobilerobot.com/applications/use-cases/production-supply/>) where autonomous traffic shares corridors with line workers
- Outbound [staging](https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/) (<https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/>) as shipping waves build

No stopping-distance curves or safety-distance tables are published; current product documentation applies to deployment decisions. The layered design is intended to make transport more predictable and may [reduce workplace accidents](https://info.mobilerobot.com/applications/results/safety-improvements/) (<https://info.mobilerobot.com/applications/results/safety-improvements/>), compared with manual pallet handling.



Handling Exceptions and Irregular Loads

Warehouses are messy, dynamic, and unpredictable. The J1600 is designed around that fact: instead of treating every irregularity as a system error, it keeps a person in the loop who handles exceptions in seconds. This page lists the situations where the human half of [dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) does its best work.

The exception list

1. **Damaged pallets.** A broken bottom board or protruding nail is spotted before it becomes a safety hazard or a jam.
2. **Unstable loads.** A top-heavy, leaning, or poorly stacked load gets a judgment call before lifting — and manual handling if needed. See [Sensitive or Unstable Loads](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>).
3. **Plastic-wrap snags.** A loose shrink-wrap tail is seen and tucked away before it catches a rack or doorframe.
4. **Misplaced pallets.** A pallet that is not exactly where the system expects is found by looking around — not reported as an error and abandoned.
5. **Damaged goods.** Leaks and crushed corners are caught before delivery to a customer or a production line.
6. **Steep dock plates.** Bumps, slopes, and trailer misalignment are manual work: automatic-mode gradeability is 0%, while [manual mode](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) handles up to 5% unloaded and 3% at full load. See [Inbound Receiving](https://info.mobilerobot.com/applications/use-cases/inbound-receiving/) (<https://info.mobilerobot.com/applications/use-cases/inbound-receiving/>).
7. **Crowded floors.** An overflowing or cluttered area is crossed by improvising a safe route manually. See [Operation in Crowded Environments](https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/) (<https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/>).
8. **Urgent reprioritization.** When a production line is starving, the operator redirects immediately — no queue, no ticket. See [Production Supply](https://info.mobilerobot.com/applications/use-cases/production-supply/) (<https://info.mobilerobot.com/applications/use-cases/production-supply/>).
9. **Route and layout changes** (<https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes/>). A new point is taught by driving there and tapping **Save location** — see [Temporary Location Setup](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>).

10. **Avoiding automation overhead.** Exceptions are the reason full automation gets expensive; handling them manually is what keeps the J1600 simple. The design targets [up to 80% of the repetitive-transport gain](https://info.mobilerobot.com/applications/results/productivity-improvements/) (<https://info.mobilerobot.com/applications/results/productivity-improvements/>) without the [integration burden](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>).

These are the company's design arguments — advocacy examples rather than comparative test results — and they explain the division of work in [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/) (<https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/>).

How takeover actually works

Exception handling relies on the handover being effortless in both directions:

- **To manual:** grab or move the tiller and the vehicle is immediately under manual control. Emergency-stop buttons, tiller-position switches, and the key switch (power off / manual only / automatic) are always available. 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/>).
- **Back to autonomous:** once the exception is cleared, select the task, confirm with the start button, and step away. See [Manual Pickup and Autonomous Delivery](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>) and [Mixed Manual and Autonomous Work](https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/) (<https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/>).

Irregular loads within the rules

Irregular is fine; incompatible is not. Whatever the exception, loads must stay within the hard limits: 1,600 kg maximum payload, open-base carrier within 1,250 × 1,250 mm including overhang, load height up to 1,700 mm. Carriers outside the envelope are not a judgment call — see [Open Cages and Alternative Load Carriers](https://info.mobilerobot.com/applications/use-cases/open-cages-and-alternative-load-carriers/) (<https://info.mobilerobot.com/applications/use-cases/open-cages-and-alternative-load-carriers/>).