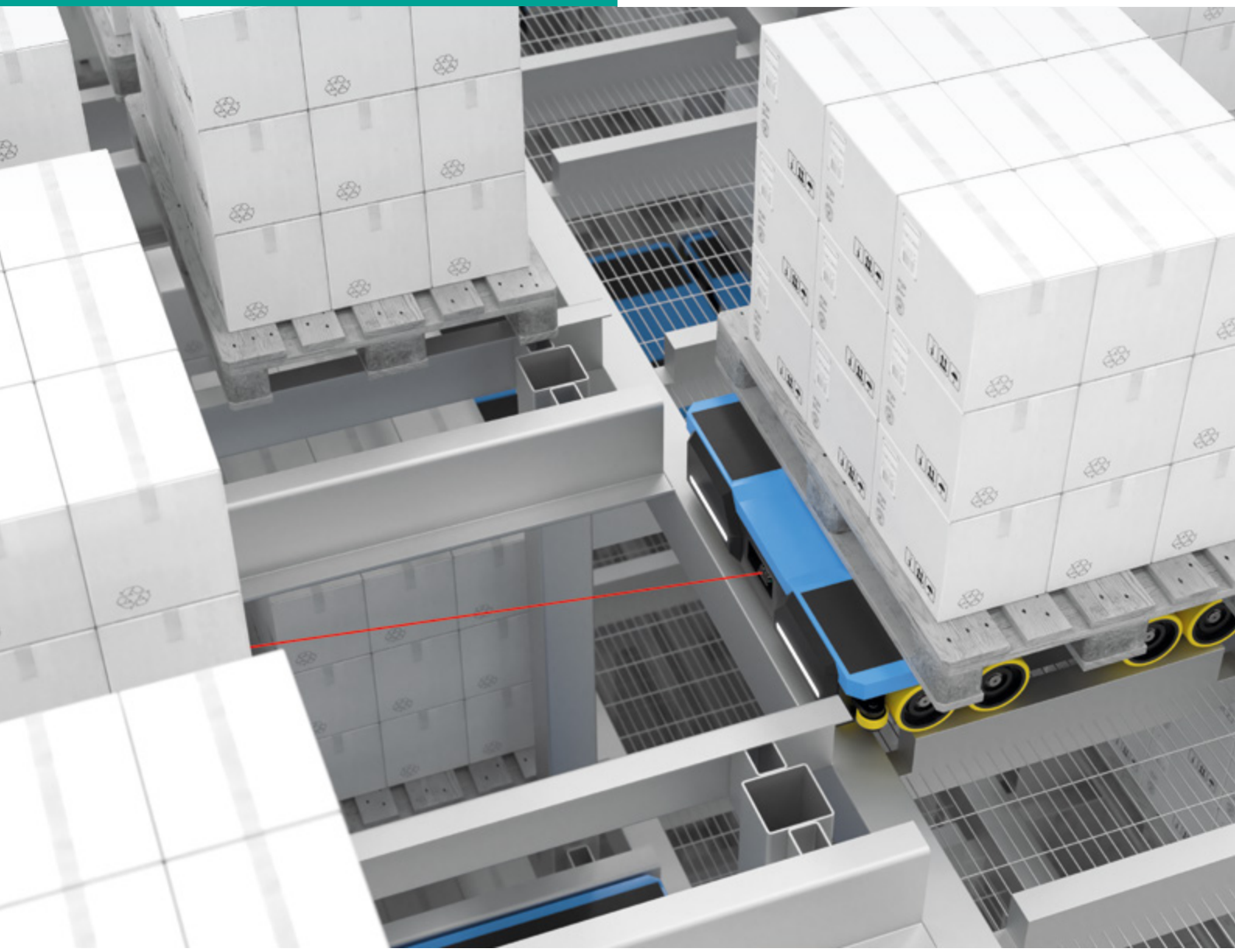
Small but Powerful.

Precise distance measurement up to 150 m in confined spaces.

R200 Series Distance Sensor with Pulse Ranging Technology





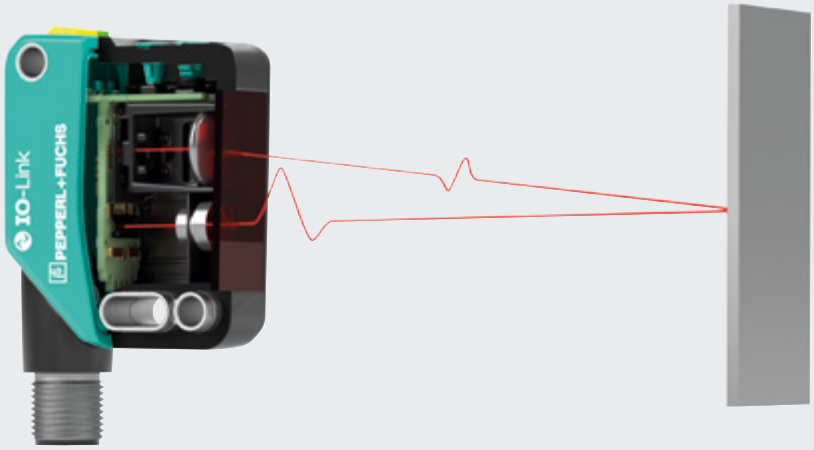
Your automation, our passion.

PEPPERL+FUCHS

R200 Series Distance Sensor

Compact Precision up to 150 m for Demanding Conditions

The R200 Series distance sensors combine high-precision Pulse Ranging Technology with a compact design, enabling measurement ranges of up to 150 m. Intelligent multi-target evaluation distinguishes relevant targets from interfering reflections, thereby increasing process reliability, even under challenging environmental conditions.



Long Measuring Ranges. Compact Design.

The second generation of the R200 combines high-precision Pulse Ranging Technology with intelligent multi-target functionality, providing improved process reliability in demanding conditions. With measurement ranges of up to 20 m on natural objects and up to 150 m with the reflector version, and a repeat accuracy of < 3 mm, the sensor handles a wide variety of measurement tasks. Its compact design and IO-Link with Smart Sensor Profile enable flexible integration and future-oriented, cost-efficient automation.

Pulse Ranging Technology: Precise Measurement Over Long Distances

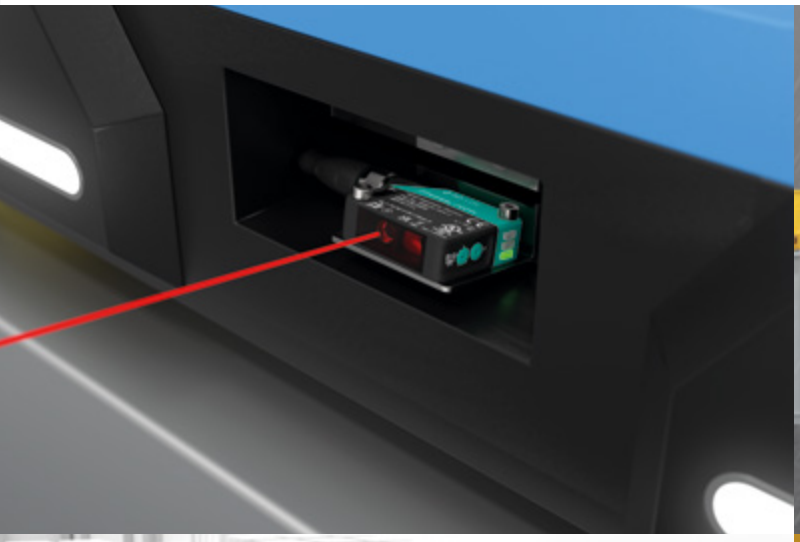
The Pulse Ranging Technology (PRT) developed by Pepperl+Fuchs enables highly precise distance measurements over long ranges. Short, high-energy laser pulses are reflected by the object being measured and detected by a light-sensitive receiver. Based on the measured time-of-flight, the sensor calculates the distance directly and precisely. The high energy density of the pulses enables long measurement ranges and effectively suppresses interference. This ensures accurate measurement results, even in ambient light and with varying object properties.

For more information, visit
pepperl-fuchs.com/pf-R200-PRT

Excerpt of technical data	OMD20M-R200	OMR150M-R200
Measuring range	Up to 20 m on natural objects (90% reflectance) or 6 m (6% reflectance)	Up to 150 m on a reflector
Repeat accuracy	< 3 mm	< 6 mm
Absolute accuracy	typ. ±20 mm (including temperature effect)	
Signal output	2EP push-pull switching signal output Analog output IEP/UEP (0/4 ... 20 mA, 0 ... 10 V)	
Response time	3 ... 100 ms, adjustable Standard: 12 ms	
Interface	IO-Link V1.1.5	
Resolution	1 mm	

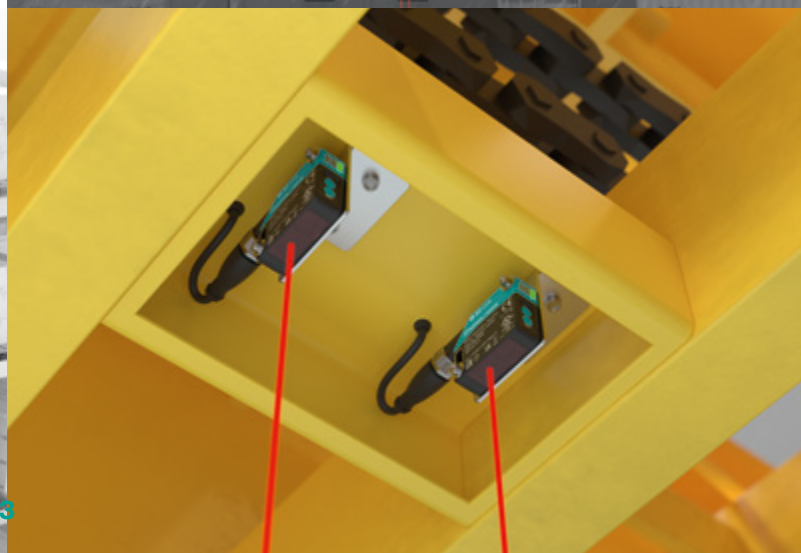
Highlights

- Improved process reliability even in challenging environments with intelligent multi-target functionality
- High-precision distance measurement up to 20 m, or up to 150 m with a reflector
- Compact design for maximum flexibility where space is limited
- Intelligent Pulse Ranging Technology with a repeat accuracy of up to 3 mm
- Standardized IO-Link interface with Smart Sensor profile for future-oriented automation
- Optimized, cost-effective design for a wide range of applications









R200 Series Distance Sensor

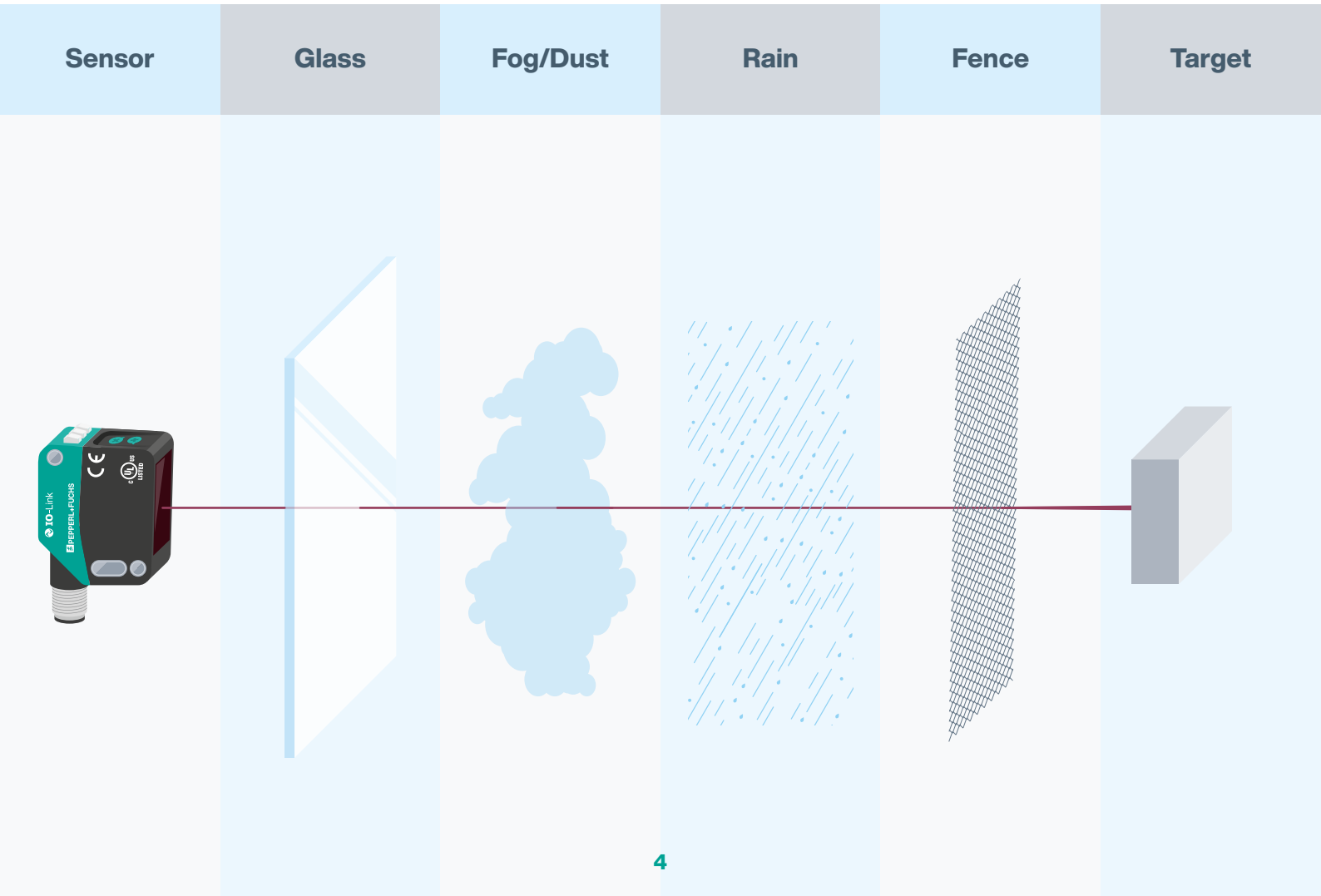
Focused on Your Application

Complex measurement paths place varying demands on signal evaluation. With intelligent multi-target functionality and six selectable operating modes, the R200 can be tailored specifically to the measurement task at hand. This delivers accurate measurement results and increased application flexibility.

Multi-Target Evaluation for Enhanced Process Reliability

Accurate measurement results despite glass, fog, rain, dust, fences, or nearby objects in the measurement path: The multi-target functionality detects interfering reflections and focuses specifically on the relevant measurement target.

To do this, the R200 sensor evaluates the complete echo of each laser pulse. It detects multiple reflections, determines their distance, and selects the relevant target based on the set operating mode. Interference echoes are filtered out before they can affect the process. This increases measurement and process stability and expands outdoor application possibilities for maximum flexibility.



R200 Series Distance Sensor

One Sensor, Six Modes, Flexible Measurement



First Target Mode (Standard Mode)

Detects the nearest object within the measurement range and suppresses reflections from objects behind it. Ideal for typical distance and presence detection tasks.



Foreground Suppression Mode

Suppresses objects within a defined close range and evaluates the first valid target behind them. This ensures that protective screens, grids, grippers, or nearby machine parts do not interfere with the measurement.



Last Target Mode

Evaluates the farthest detected target. This enables accurate measurements through transparent covers or interfering objects passing through the sensing field.



Retroreflective Mode

Uses the signal from a reflector as a unique reference and suppresses other echoes. Natural objects that do not have a typical reflectance curve are actively filtered out.



Reflector Suppression Mode

Suppresses interference from reflective surfaces and objects near the light beam, ensuring reliable target detection when, for example, people wearing high-visibility move near the beam.

Expert Mode

Provides access to advanced parameters for application-specific signal evaluation. This allows the sensor's behavior to be specifically tailored to complex measurement tasks.

R200 Series Distance Sensor

Extended Range, Adaptable Operation

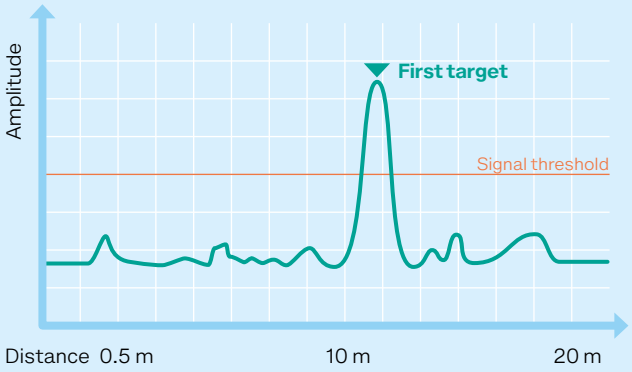
Long measurement ranges, limited installation space, and varying environmental conditions place high demands on sensor technology. With its compact design, extended measurement range, and six intelligent operating modes, the R200 can be precisely tailored to the specific measurement task—ensuring consistent positioning, object detection, and stable material flows.

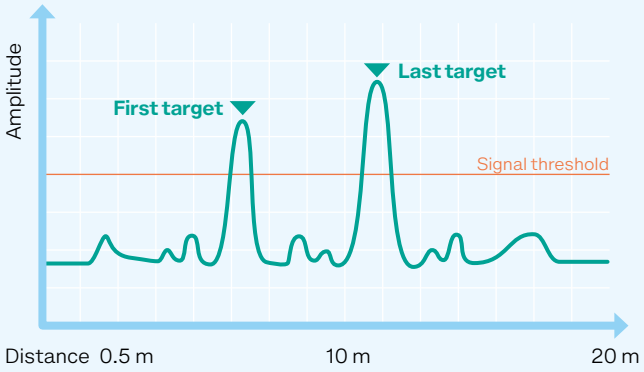
Positioning Containers Safely and Precisely

On gantry and harbor cranes, two R200 sensors reliably monitor the narrow gap between two containers under vibration and adverse environmental factors such as rain. The “First Target” mode detects the nearest container in each instance and provides a stable end-position signal. This ensures that the containers do not touch each other and are transported safely. Due to their compact design, the sensors are easy to integrate; their immunity to ambient light and interference ensures collision-free positioning.

Lift Height Detection with Interfering Reflections

The sensors of the R200 series are also ideal for mobile vehicles operating outdoors. Mounted beneath the fork, the sensor monitors lift heights up to approximately 6 m relative to a reference element. The “Last Target” mode evaluates the farthest relevant reflection and filters out closer objects in the beam path. This ensures that information on load and lift height remains available even in fog and challenging outdoor conditions.







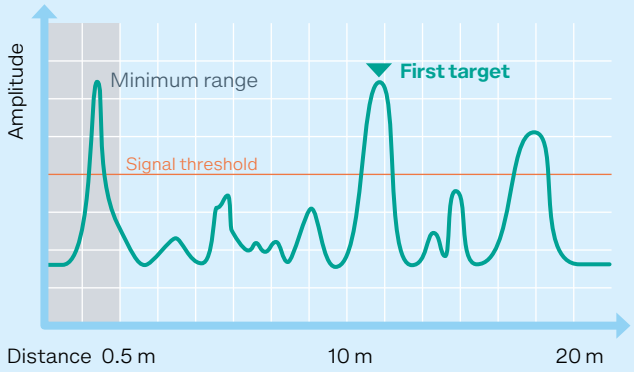


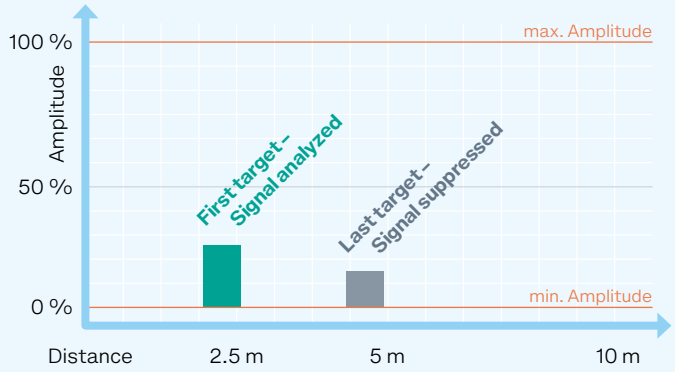
Vehicle Detection in Any Weather

Mounted in the barrier post behind a protective glass pane, the R200 reliably detects vehicles in snowy conditions. The “Foreground Suppression” mode suppresses the nearby glass pane and evaluates the relevant target behind it; a defined background limits the detection range. This enables interference-free detection while the sensor remains protected inside the housing.

Reliably Detecting Available Storage Spaces

In sprawling high-bay warehouses, goods must be reliably transported to their storage locations. Multiple R200 sensors mounted on autonomous shuttles assist with navigation through the aisles and verify whether the designated storage location is available. The measurement range can be specifically limited so that pallets and structures on the rack levels behind are ignored. The compact design and customizable evaluation reduce false detections and support a smooth material flow.









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