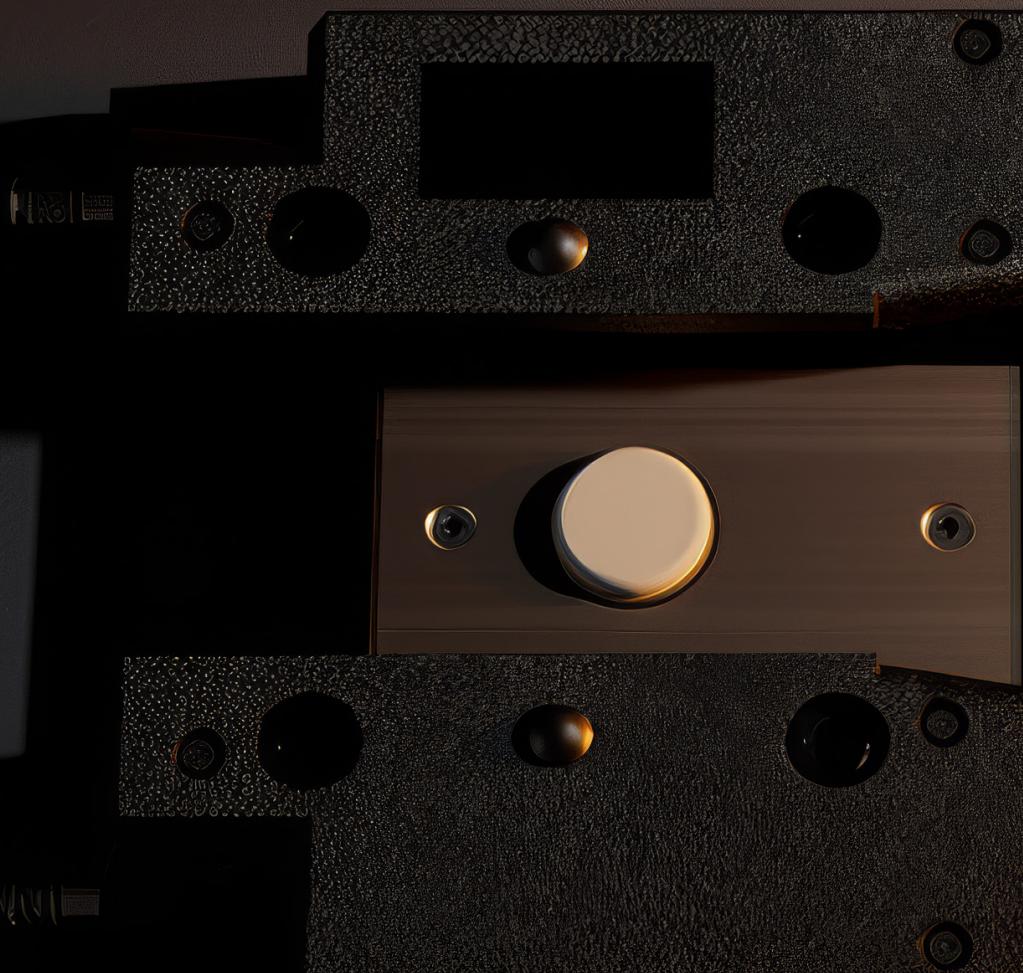


Smart Visibility for Mobile Assets

# SMAVOO *Trolley*





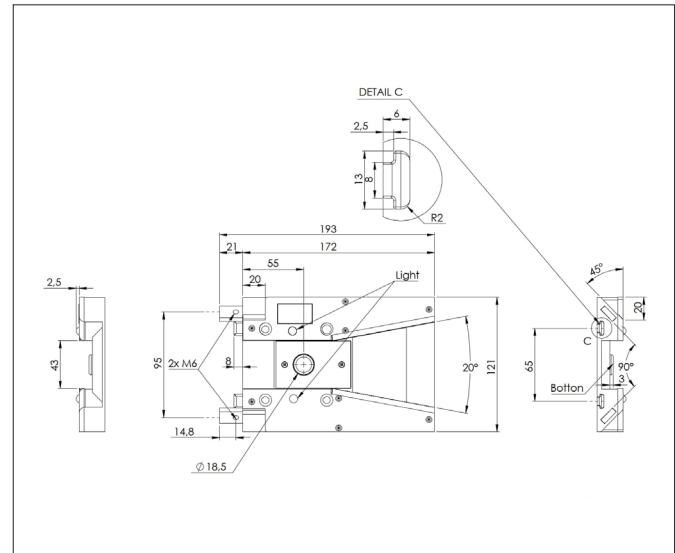
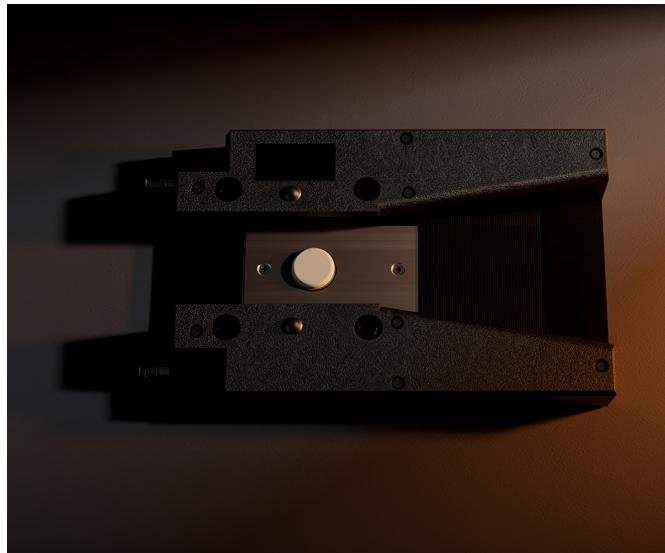
## Description

The SMAVOO Trolley sensor is designed to streamline warehouse logistics by monitoring the movement and positioning of trolleys. It can detect the absence or presence of a trolley and count how many trolleys have been inserted. This enables automated tracking

and optimization of material flow, ensuring efficient utilization of warehouse space. Additionally, its hybrid communication options (WiFi & LoRaWAN) provide flexible connectivity for various industrial environments during all operational processes.

## Key Features

<b>01.</b>	Real-Time Trolley Visibility	<b>03.</b>	Automation-Ready Connectivity
<b>02.</b>	Compact. Durable. Plug-and-Play	<b>04.</b>	Smooth Roll Detection with Optical Feedback



Enclosure	Dimensions	193 mm x 121 mm x 23 mm
	Material & Color	Synthetic material, black
	Installation	Insertion into a T-slot rail, floor mounting via mounting tabs
Power Management	Power Supply	2x AA batteries
	Lifetime	Up to two years with 30 actuations per day
Temperature Regulations	Operating Temperature	-10 °C to +40 °C
	Ingress Protection (IP)	IP65
Quality & Compliance	Certifications	CE
	Warranty	24 months
Device Functionality	LED	2x RGB LEDs
	Button	Wheel detector
	External Connector	Service interface

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## Use-Cases

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### Warehouse



The SMAVOO Trolley sensor brings visibility to a frequently overlooked asset: material handling trolleys. In busy warehouses, carts often go missing, pile up in one area, or are unavailable when needed. The sensor detects the presence or absence of trolleys in defined slots and can count them in real time. Managers instantly see how many carts are available and where they are staged. Integrated with IoT and AGV systems, the sensor can even trigger automated returns when a defined number of empty trolleys is reached. This eliminates manual cart hunting, prevents bottlenecks, and ensures trolleys are always where they're needed—keeping material flow smooth and orders moving without delay.

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### Picking



In picking operations, SMAVOO Trolley sensors track the availability and movement of pick carts in real time. Sensors at picking zones verify that carts are present when a picker starts a batch and detect when carts remain idle or abandoned, prompting retrieval before aisles get blocked. Integrated with the WMS, each trolley can be linked to active orders, allowing supervisors to see which batches are in progress and which may be delayed. By counting carts in circulation, the system also helps balance workload and staffing needs across shifts and peak periods. This smart tracking prevents lost or forgotten orders, improves flow transparency, and enables faster, more reliable batch and cluster picking.

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### Production



In production and assembly, trolleys deliver part kits to the line and remove finished goods. SMAVOO Trolley sensors at docking points detect arrivals and departures automatically, logging kit delivery and triggering replenishment when carts are emptied. If required trolleys are missing, the system flags it immediately, preventing line delays. By counting carts entering and leaving production zones, supervisors gain instant insight into material flow and can spot misplaced containers early. Wireless connectivity via WiFi or LoRaWAN ensures reliable reporting across the factory. The result is just-in-time material supply, accurate internal logistics, and uninterrupted production flow without waiting for carts or parts.

## Frequently Asked Questions

How does the Trolley Sensor differentiate between an empty spot and a trolley that's just placed incorrectly?

The sensor uses a haptic pressure mechanism that requires a specific weight threshold to activate. Trolleys need to be properly positioned on the sensor button to register, ensuring accurate detection. Misaligned trolleys that don't fully engage the sensor won't trigger false positives, maintaining system accuracy and encouraging proper trolley placement.

Can the sensor count multiple trolleys stacked or nested together?

Yes! The sensor can be configured to detect and count nested trolleys based on weight or specific physical characteristics. This is particularly useful for tracking storage areas where trolleys are stacked to save space. The counting algorithm can distinguish between single, or multiple nested units based on your specific trolley design.

What happens if someone leaves items on the sensor when no trolley is present?

The sensor is calibrated to recognize the specific weight and pressure pattern of your trolleys. Random items or unauthorized use won't register as valid events. You can also configure visual indicators (LED alerts) and system notifications when unusual weight patterns are detected, helping maintain proper sensor usage.

Can the sensors communicate with AGV systems for automatic trolley management?

Absolutely! The Trolley Sensor integrates seamlessly with AGV and warehouse management systems through WiFi and LoRaWAN. When sensors detect empty slots or full trolley staging areas, they can automatically trigger AGV dispatch to redistribute trolleys, creating a self-managing trolley ecosystem throughout your facility.

How does the floor-mounted design hold up to forklift traffic and daily wear?

The sensor features an industrial-grade ABS housing rated for warehouse environments. It can withstand repeated trolley loads and occasional forklift passes when properly installed. The low-profile design (23mm height) minimizes impact risks, while screw-down or adhesive mounting options provide flexible installation based on your traffic patterns.

How quickly does the system respond when a trolley is placed or removed?

Response time is typically 1-5 seconds from detection to system update. The LED indicator provides immediate local feedback, while wireless transmission to your management system happens simultaneously. This rapid response enables real-time workflow adjustments and immediate visibility of trolley status changes.

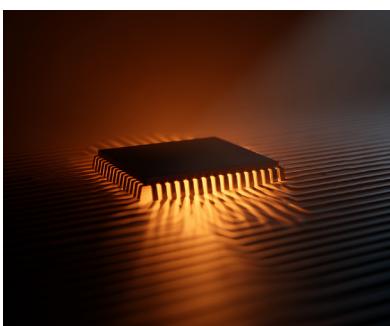


## ONE.CORE *Function*

SMAVOO ONE.CORE is the heart of the SMAVOO ecosystem — a fully modular sensor platform designed specifically for demanding industrial environments. Unlike conventional IoT devices with fixed feature sets, ONE.CORE adapts precisely to your requirements through interchangeable communication modules, configurable sensor interfaces, and edge-computing

capabilities. Born out of frustration with proprietary systems that lock companies into inflexible technologies, ONE.CORE is built on open standards and a future-proof design. Start with exactly what you need today and expand the platform seamlessly as your business grows and evolves naturally — all without having to replace your hardware investment.

## ONE.CORE *Key Features*



01.

Modular Communication:  
WiFi, LoRaWAN, Bluetooth  
Low Energy (BLE)

02.

Plug-and-Play Interface for  
Sensors (RFID, Barcode,  
Environment, Movement)

03.

Designed for Edge  
Intelligence, Buffering,  
and Fail-Safety

**ONE.CORE *Multiband***

Core.CPU	240 MHz Dual Core CPU	ADC voltage monitoring (battery)
	520 KB SRAM, 4MB flash	Secure boot with flash encryption
		Hardware encryption (AES, RSA, ECC, HASH)
		Ultra low power consumption
Core.WiFi	WPA2 Enterprise (EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-FAST)	
	IEEE 802.11 b/g/n, up to 150 Mbps	
		X.509 certifications (4096-bit)
		Firmware upgrade via Over-the-Air Update (OTA)
Core.LoRaWAN (optional)	CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923-1&2&3&4	
	FSK, GFSK, MSK, GMSK, LoRaTM and OOK Modulation	
	127 dB Dynamic Range RSSI	Over the Air Activation (OTAA)
	Activation by Personalization (ABP)	Advanced Encryption Standard (AES)
	-144 dBm sensitivity	IEEE802.15.4g
Core.BLE (optional Core.PDI)	Compliant with Bluetooth v4.2 BR/EDR and Bluetooth LE specifications	
	NZIF receiver with -94 dBm Bluetooth LE sensitivity	
	Adaptive Frequency Hopping (AFH)	
	Bluetooth 4.2 BR/EDR and Bluetooth LE dual mode controller	
	Multi-connections in Classic Bluetooth and Bluetooth LE	
	Simultaneous advertising and scanning	

# SMAVOO Solutions

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## Hybrid Tracking

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Hybrid indoor and outdoor tracking means none of your assets go AWOL on our watch. Our smart trackers give you a real-time overview over your assets, and

seamlessly move from outdoor to indoor. Our RFID solutions make sure you always know what's there - even with tricky interferences or metal parts.



## Smart Picking

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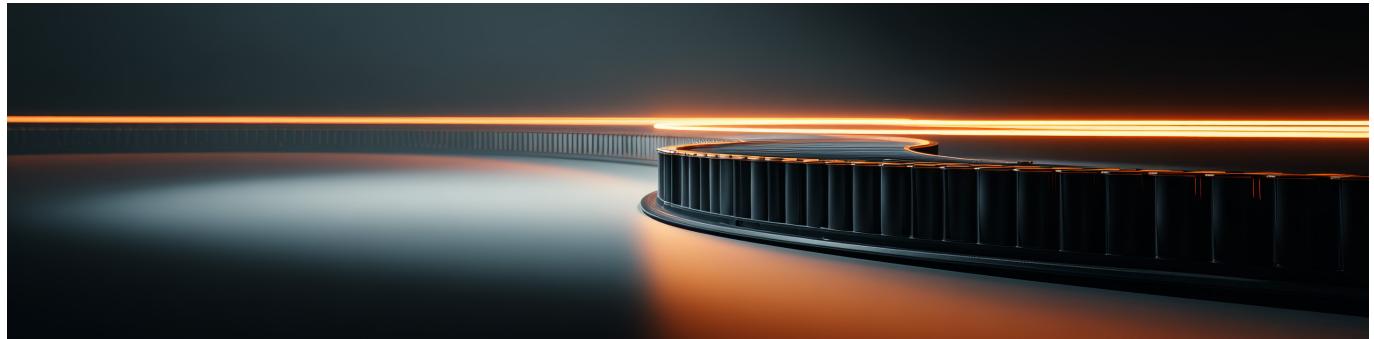


Smart picking guides your workers from A to B - and our solutions are there to make sure every pick is the right one. From saving paper by replacing picklists with

our EPD Tablets, handsfree Barcode-Scanners or our range of smart labels for KLTs and GLTs - we're always there to make sure the process flows just as intended.

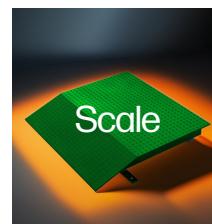


## Smart Reordering & eKanban



With our range of automatic and semi-automatic line feeding solutions, we make sure your line never stops. From Distance Sensors to Switches and Scales

that detect when material levels are below a certain threshold to Order Cords and Reorder-Buttons: We make sure everything arrives on time, every time.

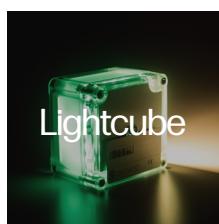


## AGV/AMR Sensors



Our range of AGV/AMR sensors make sure your indoor transport is always perfectly coordinated and safe. With light-guided systems, AGV Buzzers and Smart

Barriers, your existing fleet always finds its way through your warehouse - and if you're still looking for an AGV fleet, we've got you covered with our models as well.



## About SMAVOO

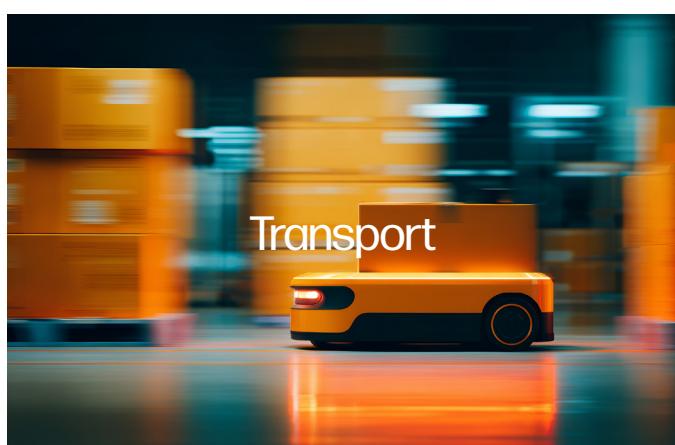
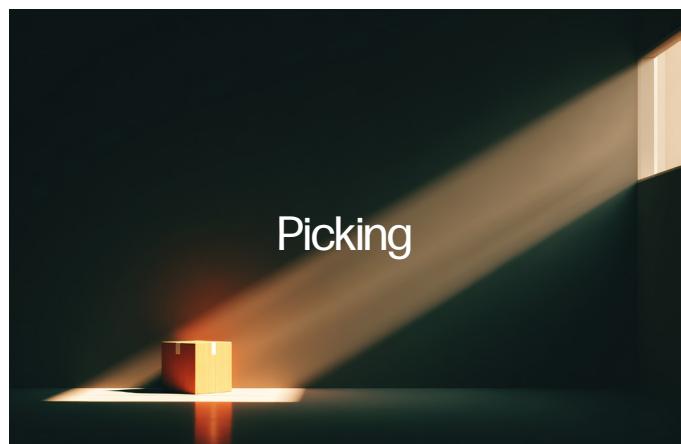
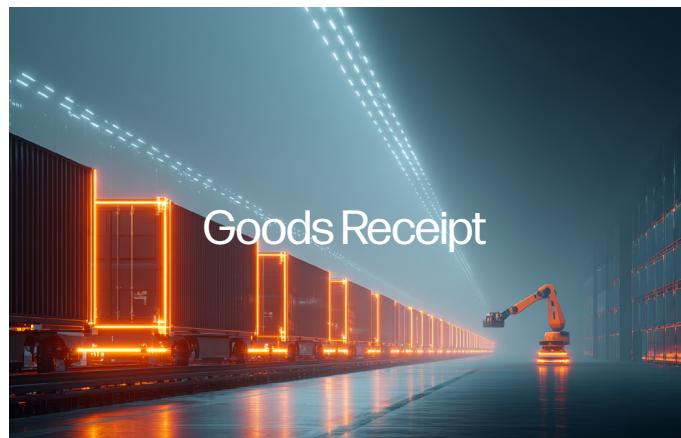
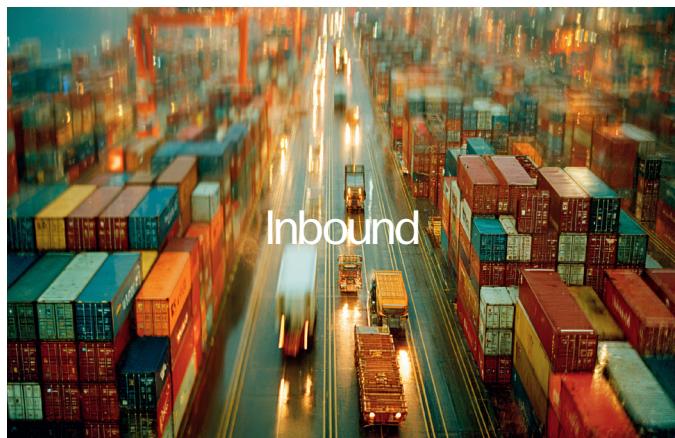
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At SMAVOO, we believe in all-in-one-solutions: Hardware, Software & Service. We specialize in Industrial IoT (IIoT) solutions for production and logistics. Our expertise spans RFID technology, sensor networks, and software development with the goal

of creating modular systems that make operations efficient, transparent, and error-free. Our customized solutions help companies digitalize their processes and make smarter decisions through real-time tracking across all modern workflows.

### Material Flow

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We're not here to bulldoze your workflow: Keep what works, ditch what doesn't. We plug in, make it smarter, and let you scale or pivot without rewriting your playbook. And because we're logistics people too, we know the pain of endless integration projects. We've

been there, done that, and built something better: Fast rollouts, real support, and partnerships that don't vanish after go-live. Our track record? Industry leaders trust us to keep them ahead - because we deliver the goods, not just the sales pitch.

Smart, Seamless and Scalable. Or *Simply SMAVOO*.



## *Contact Us*

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Excited about the future? So are we, and we look forward to optimizing your processes together. Whether you're interested in a demo setup or just a casual introduction, you can reach us here.

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*General Enquiries*

[sales@smavoo.com](mailto:sales@smavoo.com)  
[smavoo.com](http://smavoo.com)

*Dr. Rouven-B. Wiegard*

Managing Director  
Phone: +49 511 515614 08