



MUVRO
Move to Next Level

AUTOMATED GUIDED VEHICLE



MAKE IN INDIA



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Reduce Labor Cost



Increase Safety



Improve Accuracy



Reduce Operation
Cost & Manpower



Increase Efficiency



24/7 Operation &
Multi-Shift



Collaborative with Humans

System Overview

Automatic guided vehicles (AGV) are designed to perform their operations without direct human guidance. They are used in a wide variety of industrial / intralogistics applications with various navigation options like QR code, laser & natural navigation. An automatic guided vehicle system (AGV's) consists of one or more computer-controlled wheel based load carriers (normally battery powered) that runs on the plant floor (or, if outdoors, on a paved area) without the need for an on board operator or driver.

Screw Jacking AGV

Uses of Muvro AGVs to move shelves, pallets, large carts and special parts between warehouses. The solution coordinates with the muvro process Management System to transfer items between warehouses conveyor lines, and collection and delivery personal.

Application Scenarios: Warehouse Docking, cross-warehouse operations, platform moving, and internal warehouse moving.

Application industries: Pharmaceuticals, footwear, retail, food, FMCG, household goods, etc.



Safety Scanner

ScanGrid2 offers an economical safety solution for small, line-guided AGVs (automated guided AGVs): The world's first LiDAR multibeam scanner with safe solid state technology. Large fleets of AGVs can not only offer efficient protection up to performance level c, but can also be made more productive. scanGrid2 enables the elimination of mechanical barriers as well as higher driving speeds and heavier loads on the AGVs. Its compact design and smart functions also ensures quick and simple installation, configuration and diagnostics. Simply revolutionary.

At a glance

- Perfectly designed for the requirements of line-guided AGCs: PL c, 1.1 m scanning range, 150° scanning angle.
- Diagnostic data and clone function for configuration via the Safety Assistant app and the Safety Designer software



**Safety multibeam scanners
scanGrid2**

Protective field range	1.1 m (At a resolution of 70 mm)
Warning field range	4 m (At a resolution of 70 mm and a remission of 80%)
Number of simultaneously monitoring fields	≤ 2 ¹⁾
Number of fields	8
Number of monitoring cases	4
Scanning angle	150
Resolution (can be configured)	50 mm, 70 mm, 150 mm, 200 mm
Angular resolution	6
Response time	≤ 60 ms
Number of multiple sampling	1 ... 4
Protective field supplement	100 mm
Items supplied	Safe multibeam scanner Safety instruction Mounting Instructions Operating instructions for downloads

Grid Localization

The device localizes automated guided vehicle (AGV) systems using 2D codes. The device is mounted on the underside of the AGV. The 2D codes are attached in the form of a raster on the floor. The individual 2D codes are numbered and contain position information. This device detects and decodes 2D codes. The device uses the host interface to send the read data, the additionally detected X- and Y-coordinates and the angle of shift to a higher-level control (e.g. PLC). Using this data, the AGV is localized and repositioned by the control.

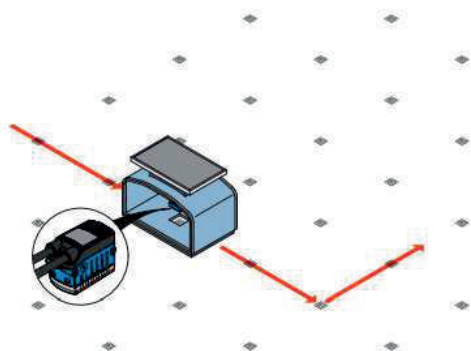


Scope of delivery

The Delivery of the device includes the following components

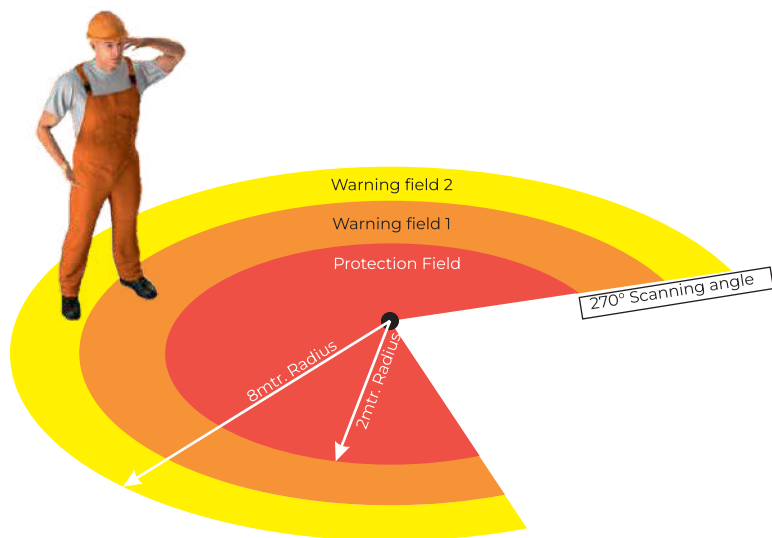
Component	Description
Device in the version ordered	M12 female connector for Ethernet sealed with tightly-fasten protective cap without bracket
Protective Cap	To seal off the M12 female connector of the Ethernet connection if the interface is not being used. The screwed in protective cap maintains, in this case, the IP54 enclosure rating of the device.
Focus adjustment tool	For manual focus adjustment.
Printed safety notes, multilingual	Brief information and general safety notes.

Function & Use



Grid Localization is optimally tailored to the application. This device also enables the highest overspeeds to be reached. Alternatively, individual 2D codes provided can also be used. The 2D codes must be dependent on the working distance and the mounting direction of certain requirements on code resolution.

SAFETY SYSTEM



Key Highlights

- EN 13849
- Self Weight 75 kg
- Robot Payload 1000 kg (Max. 5% incline)
- Ambient Temperature Range (+)5°C to 50°C (humidity 10-95% non-condensing)
- Sick safety multibeam scanner scanGrid2, Scanning angle 150°, Protective field 1.1 m, Warning field 4 m.
- Sick safety laser scanner nanoscan 3, Scanning angle 275°, Protective field 3 m, Warning field 10 m.
- 3D camera Intel RealSense™ Detection of objects ahead, 50-500 mm above floor

Basic Specifications	AGV
Speed	1.5 m/s
Safety Equipment	Safety towards environment
Travel Path	Defined Repetitive Path





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Technical Specification

MODEL NO.	ROBO-aDS2 (AGV with Tilt Tray)	ROBO-aDS5 (AGV With Belt Conveyor)	ROBO-aDS50 (AGV With Jacking)	ROBO-aDS100 (AGV With Jacking)
Applications	Warehouse Intralogistics and Shipment Sorting	Warehouse Intralogistics and Shipment Sorting	Warehouse Intralogistics, Pallets & Racks Handling, Goods to Person.	Warehouse Intralogistics, Pallets & Racks Handling, Goods to Person.
DIMENSIONS				
Length	600 mm	600 mm	950 mm	1050 mm
Width	500 mm	500 mm	650 mm	850 mm
Height	750 mm (AGV - 250 mm + Conveyor Belt Top - 500 mm)	750 mm (AGV - 250 mm + Conveyor Belt Top - 500 mm)	270 mm	270 mm
Floor Clearance	30 mm	30 mm	30 mm	30 mm
Self Weight	75 kg	100 kg	175 kg	200 kg
Max Carrying Product Size	300 x 400 mm	500 x 600 mm	1220 x 1050 mm	1220 x 1050 mm
PAYLOAD				
Robot Payload	25 kg (maximum 5% incline)	50 kg (maximum 5% incline)	500 kg (maximum 5% incline)	1000 kg (maximum 5% incline)
Towing Capacity	25 kg (maximum 5% incline)	250 kg	1000 kg	2000 kg
SPEED AND PERFORMANCE				
Battery Running Time	8 hours	8 hours	8 hours	8 hours
Maximum Speed	Forwards: 1.5 m/s (5.4 km/h), Backwards: 0.5 m/s (1.8 km/h)	Forwards: 1.5 m/s (5.4 km/h), Backwards: 0.5 m/s (1.8 km/h)	Forwards: 1.5 m/s (5.4 km/h), Backwards: 0.5 m/s (1.8 km/h)	Forwards: 0.8 m/s (2.9 km/h), Backwards: 0.5 m/s (1.8 km/h)
Turning Radius	600 mm (around center of robot)	600 mm (around center of robot)	950 mm (around center of robot)	1050 mm (around center of robot)
POWER				
Battery	LIFE-PO4, 48 V, 12 Ah	LIFE-PO4, 48 V, 12 Ah	LIFE-PO4, 48 V, 24 Ah	LIFE-PO4, 48 V, 24 Ah
Charging Time	1 hour (10% to 90%) at Charging station, 2 hours (10% to 90%) with cable charger	1 hour (10% to 90%) at Charging station, 2 hours (10% to 90%) with cable charger	1 hour (10% to 90%) at Charging station, 2 hours (10% to 90%) with cable charger	1 hour (10% to 90%) at Charging station, 2 hours (10% to 90%) with cable charger
External Charger	Input: 100-230 V ac, 50-60 Hz, Output: 48 V, max 12 A	Input: 100-230 V ac, 50-60 Hz, Output: 48 V, max 12 A	Input: 100-230 V ac, 50-60 Hz, Output: 48 V, max 25 A	Input: 100-230 V ac, 50-60 Hz, Output: 48 V, max 25 A
COLOR				
RAL Color	Grey RAL-7016 , Orange glossy HGS 2302	Grey RAL-7016 , Orange glossy HGS 2302	Grey RAL-7016 , Orange glossy HGS 2302	Grey RAL-7016 , Orange glossy HGS 2302
ENVIRONMENT				
Ambient Temperature Range	(+5°C to 50°C (humidity 10-95% non-condensing)	(+5°C to 50°C (humidity 10-95% non-condensing)	(+5°C to 50°C (humidity 10-95% non-condensing)	(+5°C to 50°C (humidity 10-95% non-condensing)
COMMUNICATION				
WiFi	Dual-band wireless AC/G/N/B	Dual-band wireless AC/G/N/B	Dual-band wireless AC/G/N/B	Dual-band wireless AC/G/N/B
NAVIGATION				
Navigation Method	QR Code	QR Code	QR Code	QR Code
Positioning Accuracy	(+/-) 50 mm / 2 in of position, (+/-)10 mm / 0.4 to docking marker	(+/-) 50 mm / 2 in of position, (+/-)10 mm / 0.4 to docking marker	(+/-) 50 mm / 2 in of position, (+/-)10 mm / 0.4 to docking marker	(+/-) 50 mm / 2 in of position, (+/-)10 mm / 0.4 to docking marker
SENSORS				
SICK Safety Laser Scanner	Sick safety multibeam scanner scanGrid2, Scanning angle 150°. Protective field 1.1 m, Warning field 4 m.	Sick safety multibeam scanner scanGrid2, Scanning angle 150°. Protective field 1.1 m, Warning field 4 m.	Sick safety laser scanner nanoscan 3, Scanning angle 275°. Protective field 3 m, Warning field 10 m.	Sick safety laser scanner nanoscan 3, Scanning angle 275°. Protective field 3 m, Warning field 10 m.
3D Camera (Optional)	3D camera Intel RealSense™ Detection of objects ahead, 50-500 mm above floor	3D camera Intel RealSense™ Detection of objects ahead, 50-500 mm above floor	3D camera Intel RealSense™ Detection of objects ahead, 50-500 mm above floor	3D camera Intel RealSense™ Detection of objects ahead, 50-500 mm above floor

(Note) All above information shall be changed without prior notice, Muvro reserves the right to explain and update the latest information.



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