



# Innovative AGV Technologies

**S-CART**  
**Scalable AGV**  
**Systems**



**SU SERIES**  
**Modular AGV Subassemblies**

*NIDEC-SHIMPO has earned a solid reputation within the robotics sector as the leader in high volume, high precision, gearbox and motor technologies. Our deep partnerships and long history within the industry have given us extensive expertise at developing wheel-drive transmission assemblies for AGV's and mobile service robotics.*

# SU SERIES

## Compact Drive Assemblies for AGV OEM's

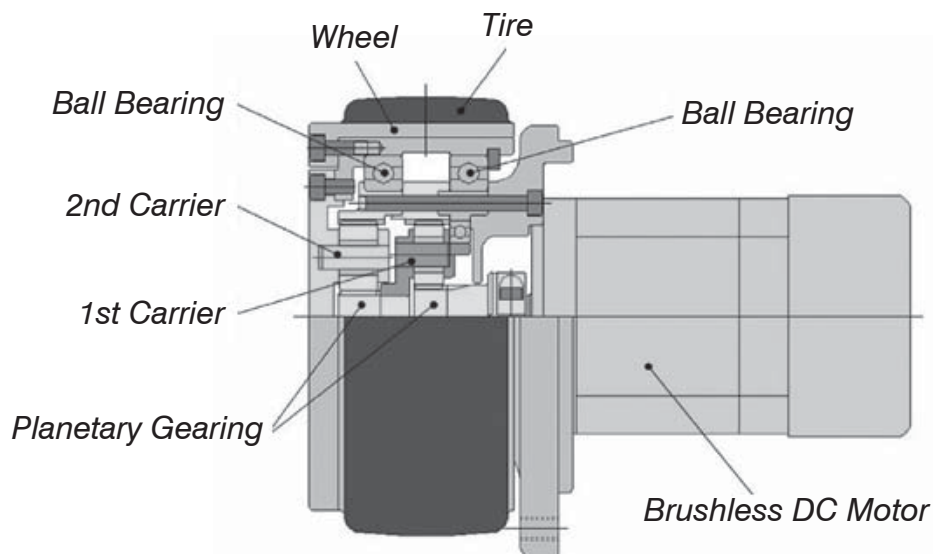
**Utilizing our strong expertise** in mobile robotic applications, Nidec-Shimpo has developed a modular OEM drive wheel package offering. We leverage the large variety of high-volume BLDC motors manufactured by the Nidec Group that offer low-rotor inertia, fast dynamic response, and high torque in order to deliver the most compact wheel drive solutions for each customer's application.

### SU Drive Pack Features

- Extremely compact, in-hub planetary design
- Bearing and internal structure are ideal for industrial environments; max. 7.840 N radial load available
- Standard design utilizes a 200 W or 400 W BLDC Nidec motor with either 21:1 or 28:1 reduction ratio
- Absolute encoders and brakes can be added to the motor, per request
- Ancillary items for mounting the wheel drive, housing the control, or cable management are available



### SU Drive Pack Diagram





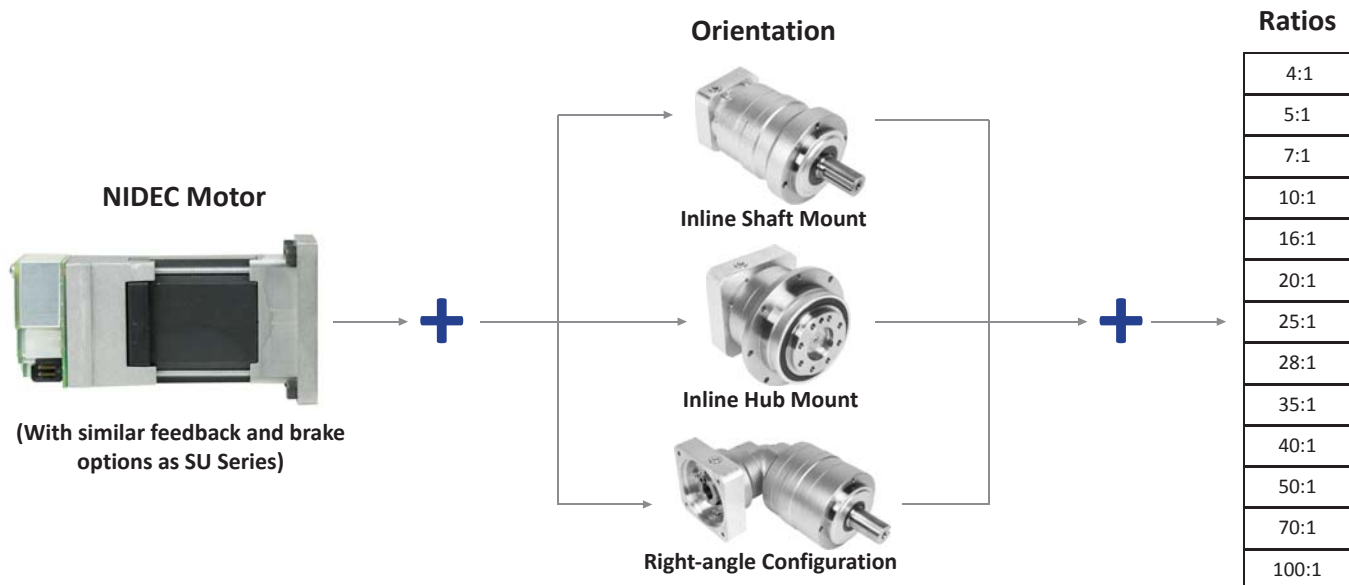
## SU Drive Pack Offering

*SU AGV Drive Pack Includes: Gearmotor with Integral Wheel, BLDC Motor & Controller, with optional tire and braking mechanism.*

Series	Control Method		Operating Mode		Encoder		Thermistor		Rated Power		Input Voltage		Gear Ratio		Frame Size		Wheel		Brake				
SU	A	External Feedback	0	Standard	0	None (Hall Sensors Only)	0	None	1	200 Watt	48	48 Volt	021	21:1	C	C-Frame	0	None	0	None			
				1	100 ppr			2	400 Watt			028	28:1			1	Wheel	1	Brake (Normally Closed)				
				2	250 ppr											2	Wheel 150 mm dia. tire						
				3	400 ppr											3	Wheel 200 mm dia. tire						
				4	1000 ppr																		
				5	256 ppr/index																		

## Other Combinations

*NIDEC-SHIMPO manufactures a complete offering of planetary gearboxes, including a wide variety of reduction ratio possibilities. Contact us if your wheel drive package requires a different ratio or configuration.*



# S-CART

## Sees... Thinks... Reacts

### Features

- Guideless running eliminates wasteful worker actions
- No magnetic tape required; route creation is unbound by taped lines
- Adapts to its surroundings; frees workers to focus on value added operations
- Manual override with tablet touch joystick allows repositioning at any time
- Multiple integral safety sensors enables it to share the space with workers and equipment
- Included tablet application provides easy route set-up
- Top mounting plate designed for simple retrofitting of cages, shelves and similar transport holding equipment

### Simple, Scalable Design with Open Architecture

Compact, Low-Profile Design



Extended 8 Hr. Operation with Li Ion Battery



Designed for Simplified Maintenance



Motion Controlled with Laser (LIDAR) Sensor

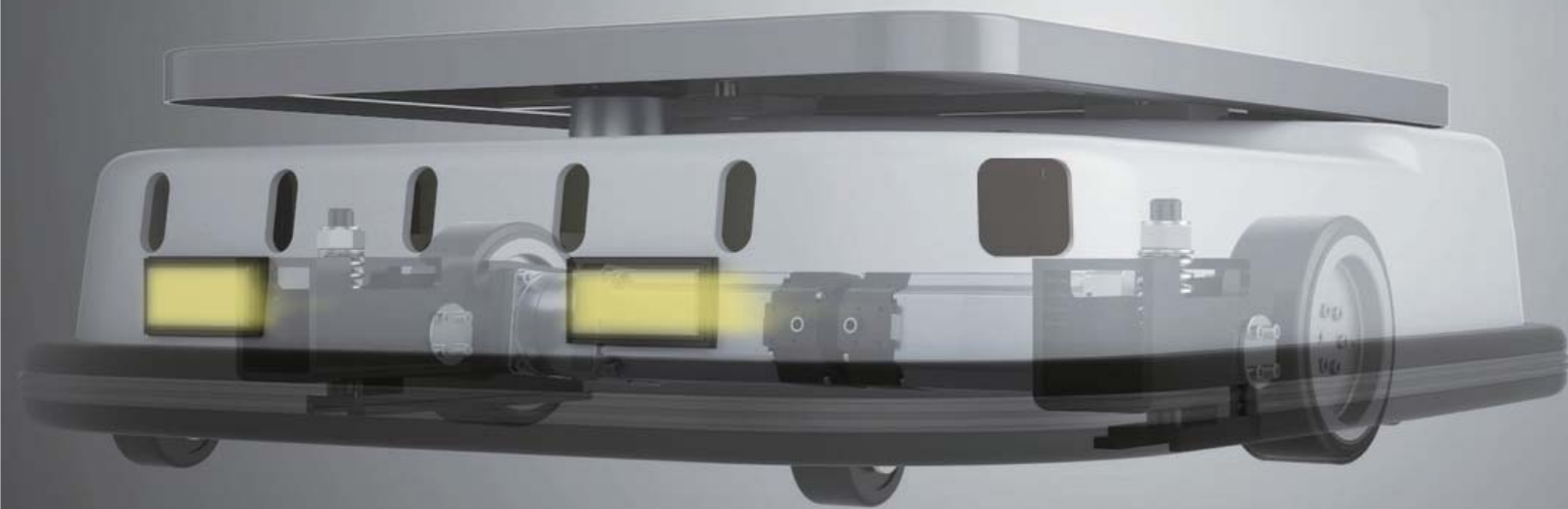


Convenient Operation with Included Tablet



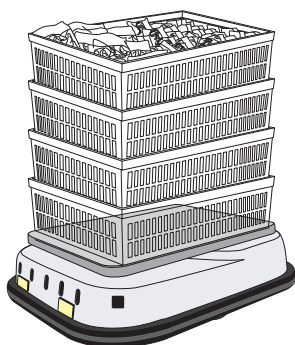
Contains Shimpo's Precision Gearboxes



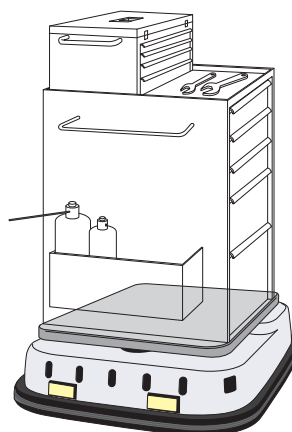


*Specialized Suspension for Stable Handling*

## Application Examples



**Moves Part Containers to Various Assembly Locations**



**Transports Tool Test Fixtures and Other Vital Diagnostic Equipment**

## Options



**Conveyor Top**



**Wireless Charging**

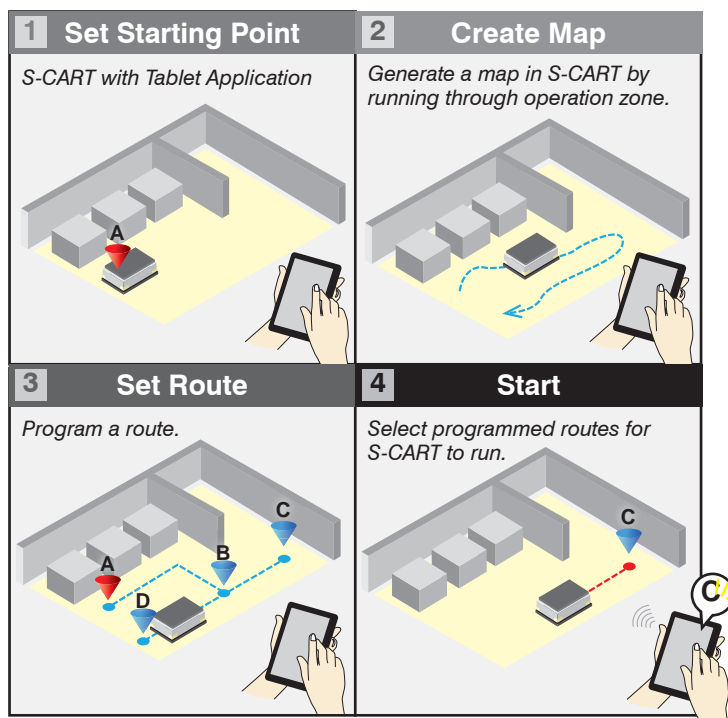


**Top Lifter**



**Tugging Hook**

## User-Friendly Tablet Configuration



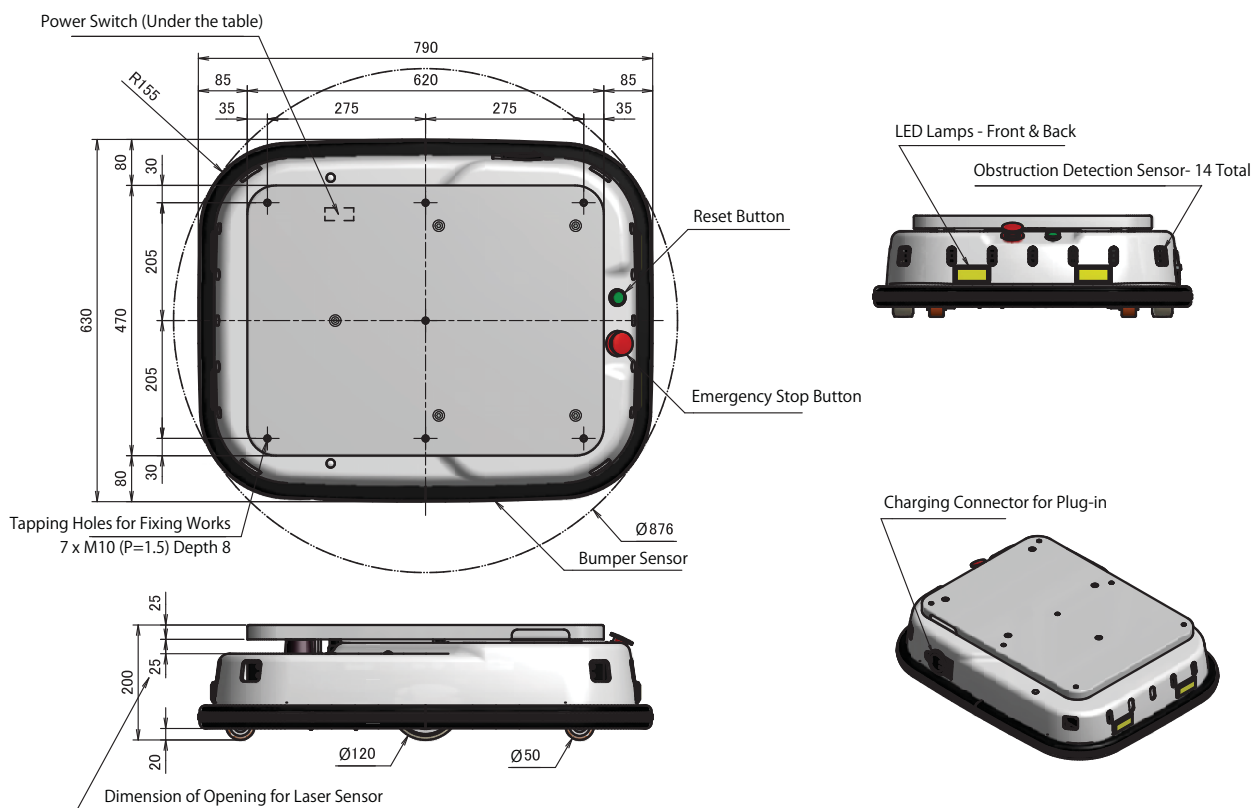
### Operation Screen



## Specifications

Operation	User Programmed routes via tablet software for automatic travel; Manual operation via touch screen digital joystick
Charging Time	1 hour
Maximum Load Capacity	-100: 220 lb (100 kg); -1000: 2204 lb (1000 kg)
Maximum Speed	196 ft/min (60 m/min) with soft start and stop
Positional Accuracy	± 1.18" (± 30 mm) or less; Angular ± 3 degrees
Minimum Diameter Turning Circle	34.5" (876 mm)
Path Width	-100: 3.3' (1 m) recommended minimum; -1000: 5.25 (1.6 m)
Top Load Plate Dim	-100: 24.4 x 18.5" (620 x 470 mm); -1000: 43.3 x 43.3" (1100 x 1100 mm)
Maximum Gap in Floor	0.39" (10 mm) wide
Maximum Floor Bump Size	0.39" (10 mm) wide, 0.2" (5 mm) high
Maximum Floor Incline	3%
Environment	Indoor usage with no excessive dust or corrosive gases
Temperature Limits	32 to 104 °F (0-40 °C)
Humidity Levels	90% RH max. non-condensing
Drive System	Differential 2 wheel speed steering operation
Motor	Two 200 W AC servo motors
Brakes	Electric for speed reduction; electromagnetic for stoppage
Tires Standard	-100: Two 4.72" (120 mm) diameter polyurethane; -1000: Two 8.7" (220 mm) diameter polyurethane
Wheels	Aluminum Wheels
Aux Wheels	-100: Four 2" (50 mm) diameter polyurethane; -1000: Four 7.9" (220 mm) diameter polyurethane
Weight	-100: 143 lbs (65 kg) base AGV; -1000: 440 lbs (200 kg)
Dimensions	-100: 24.8 x 31.1 x 7.9" (630 x 790 x 200 mm); -1000: 48.8 x 56.7 x 12.4" (1240 x 1440 x 315 mm)
Battery	47.5 Ah Li Ion
Operation Time	8 hour continuous usage
Battery Charging Time	1 hour
Charging Capability	Included 100-240VAC max input 15 A charging adapter pack with 2 prongs & ground electric plug Optional contact or non-contact auto-charge stations available
Tablet Power	100-240 VAC 0.2 A power charging adapter
Safety	Red emergency stop button Front and back obstacle detecting sensors with 1 m range -100; 3 m range -1000 Auto stop bumper contact sensor switch Four LED warning lights with flash-status indication Audible notification with adjustable decibel
Included	1 AGV, 1 charging adapter pack with 3.3' (1 m) connection cable and 6' (1.8 m) wall connector cable, 2 socket head wheel raise bolts, 7" (17.8 cm) display tablet with AC charger adapter and USB cable.

## S-CART-100



## S-CART-1000

