



**M300-TT Tunnel
Tugger 2041 kg
Max Towing
Capacity**



Smart Handling AGB Solutions M300-TT Tunnel, Tugger 2041 kg Max Towing Capacity Instruction Manual

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Smart Handling AGB Solutions M300-TT Tunnel, Tugger 2041 kg Max Towing Capacity



Product Information

Specifications

- Max Towing Capacity: 2041 kg
- Navigation Options: NFN, Inertial Navigation, Magnetic Tape/Bar Guidance
- Features: Low Profile, Safe, Affordable, Simple, Industrial, Integration
- Battery Pack: 210AH
- Navigation Enhancements: Enhanced Navigation, Co-Navigation Technology

Product Usage Instructions

Basic Operation

To operate the M300-TT AGV:

1. Ensure the AGV is charged and powered on.
2. Use the Pendant Control Plug to navigate and control the AGV.
3. Follow safety guidelines and be aware of your surroundings.

Navigation Options

The AGV offers multiple navigation options:

- Natural Feature Navigation (NFN): Utilizes environmental data to determine location.
- Inertial Navigation: Relies on odometry data and waypoints for guidance.
- Magnetic Tape/Bar Guidance: Follows a magnetic path using sensors.

Maintenance

Regular maintenance is essential for optimal performance:

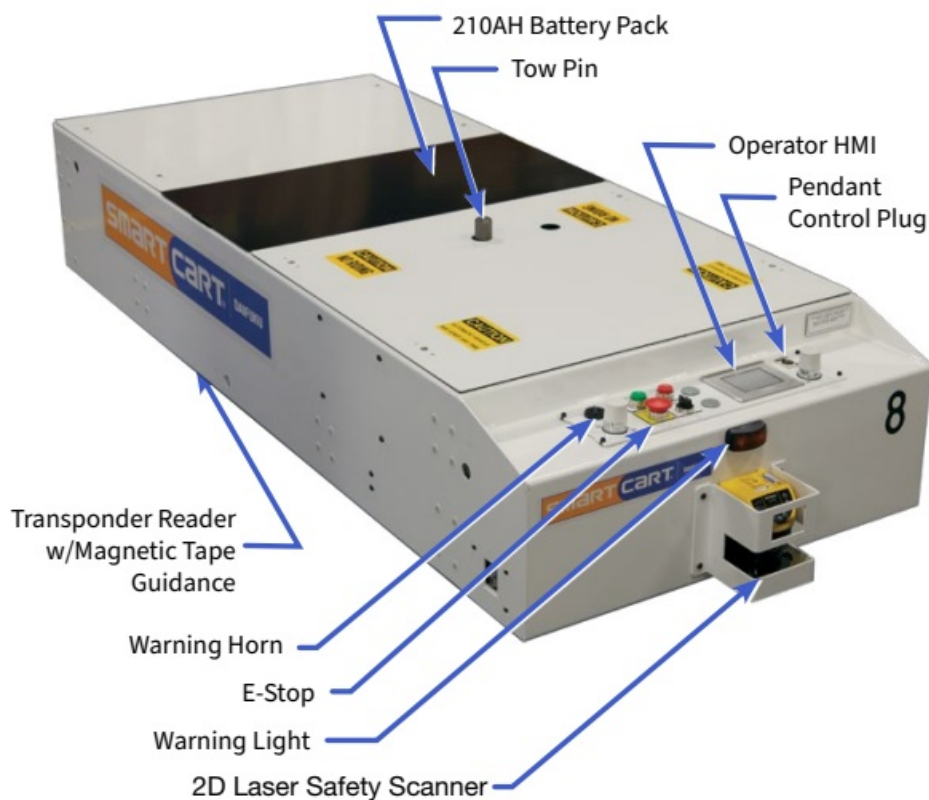
- Check battery levels and recharge as needed.
- Clean sensors and ensure proper functioning of safety features.
- Inspect wheels and steering components for wear and tear.

FAQ

- **Q: How can I integrate the AGV with Plant Control Systems?**
 - A: The AGV can be integrated via Wi-fi communications and System Automation Manager (SAM) software for traffic control.
- **Q: What is the stopping accuracy of the AGV?**
 - A: The stopping accuracy is +/- 13 mm with a proximity sensor at 9.1 mpm.
- **Q: What is the program capacity of the AGV?**
 - A: The AGV has a program capacity of 5000 program steps.

The Model M300-TT is part of the topselling family of AGVs offering ultimate flexibility, reliability and scalability at an affordable price.

Product Overview



FEATURES

- **Low Profile:** Designed to “tunnel” under mobile racks and trailers to tow them from underneath. This keeps the footprint of the AGV with trailer to a minimum.
- **Safe:** The M300-TT offers a 16-pattern laser to detect obstructions and personnel.
- **Affordable:** Many applications can demonstrate Return on Investment in three months or less.
- **Simple:** CartTools™ and AGV Tools software provide a user-friendly interface to implement/make changes.

- Industrial: Steel construction with powder coat and industrial enamel paint.
- Integration: Can integrate with Plant Control Systems via Wi-fi communications and our System Automation Manager™ (SAM) software providing traffic control.

NAVIGATION AND GUIDANCE OPTIONS

- **Natural Feature Navigation (NFN):**
 - Environmental feature data is collected by on-vehicle sensors and used by the vehicle computer to determine location.
- **Inertial Navigation:**
 - Odometry data and in-floor waypoints are used by the vehicle computer to determine location.
- **Magnetic Tape/Bar Guidance:**
 - Magnetic path is followed using sensors.

NAVIGATION ENHANCEMENTS

- Enhanced Navigation: Additional sensors can be added to augment the vehicle's navigation technology.
- Co-Navigation Technology: Multiple navigation packages may be used on a vehicle in challenging environments.

FEATURES AND OPTIONS

- Wi-fi Communications 802.11 a/b/g/n/ac
- Automatic Shut Off
- Sleep/Auto-wake
- Automatic Charging
- Wheel Brushes
- Side Swipe Optics
- Warning Light/Horn
- Cab Side Covers

This product is available with Magnetic Guidance Technology



“The Best Magnetic Guidance on the Market

Specifications

General Specifications

- Weight / with batteries 391 kg / 499 kg with traction weight
- Dimensions W: 787 mm L: 1981 mm H: 356 mm

- Traction Power 36 kg constant, 73 kg starting
- Safety – Front/rear CE/UKCA rated safety bumper
- Speed – Laser Bumper 4.6 to 48.8 MPM, (73.2 MPM w/Inertial Guidance) 6 speeds,
- 0.3 MPM increments
- Rear Paddle Bumper Maximum 9.1 MPM (if equipped)
- Rated Trailer 2,041 kg @ 48.8 MPM,
- With 2% friction factor trailer wheels
- Capacity reduced by 10% when reversing
- 1% Incline/Decline 1,179 kg @ 30.5 MPM
- Battery Options AGM 210 AH 24VDC battery pack
- AGM/TPPL 204 AH 24VDC battery pack
- Automatic Charge 80 amp charge rate (if equipped)
- Fast Automatic Charge 140 amp charge rate (if equipped)
- Manual Charge Up to 25 amp charge rate, via manual plug

Environment

- Environment – Atmosphere 0 to 40° C, 25% to 95% non-condensing humidity
- Dust/Water-proof No
- Floor Specs – Edges/Debris 6 mm abrupt elevation change maximum, smoothed
- Expansion Joints 6 mm maximum
- Grade Rating 0%
- Flatness 1% and 6 mm variation in 127 mm or less
- Friction 0.6 coefficient of friction between wheels and floor, minimum
- Floor Conductivity Static dissipative, less than $3.5 \times 10^7 \Omega$
- Radio Communication IEEE 802.11a/b/g/n/ac, plus security encryption (if equipped)

Detailed Specifications

- Available Wheel Loading Front add'l – 91 kg, Rear add'l – 104 kg each
- Weight added to the module is subtracted from the rated trailer
- Drive Direction – Automatic Forward and Reverse (if equipped)
- Duty Cycle 100% @ 9 kg drawbar (454 kg)
- Drive Unit – Wheel Vulkolan 150 mm diameter x 50 mm wide
- Drive Type Gear driven steerable turntable
- Motor 130 watts 24VDC permanent magnet
- Steering 24 VDC motor
- Brake 3Nm, spring actuated (fail-safe)
- Caster Wheels Solid elastomer 127 mm diameter x 35 mm wide
- Guidance – Magnetic Tape/Bar SmartCart AGV
- Steer Angle Sensor Analog 10-turn potentiometer
- Steering Accuracy +/- 25 mm from physical path
- Guide Loss Error Error generated within 152 mm of path loss
- Hunt for Path Not offered

- # CARTTOOLS SOFTWARE

[illegible]

Pendant Control – When manual movement is required, it's as simple as driving the AGV where it needs to go.



Reverse Magnetic Tape Guidance – By just adding another guidance sensor and laser bumper, the M300-TT can act as a shuttle cart.



SmartSteer – CartTools directing the AGV to intentionally leave the magnetic tape path. It allows maneuvers like pivot turns and ignoring floor problems when in full automatic operation.

System Automation Manager – (SAM) is a robust, easily-configured control system option for Automatic Guided Vehicles (AGVs) and SmartCart® Automatic Guided Carts (AGCs). SAM is the result of more than 60 years of experience engineering, manufacturing and installing more than 20,000 vehicles. SAM's framework can be easily customized to meet our customers' individual needs and improve the efficiency of our AGV and AGC systems.

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Documents / Resources



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References

- [User Manual](#)

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