

APPLICATION NOTE

Use of MagneMotion Products with External Conveyor Systems

Purpose

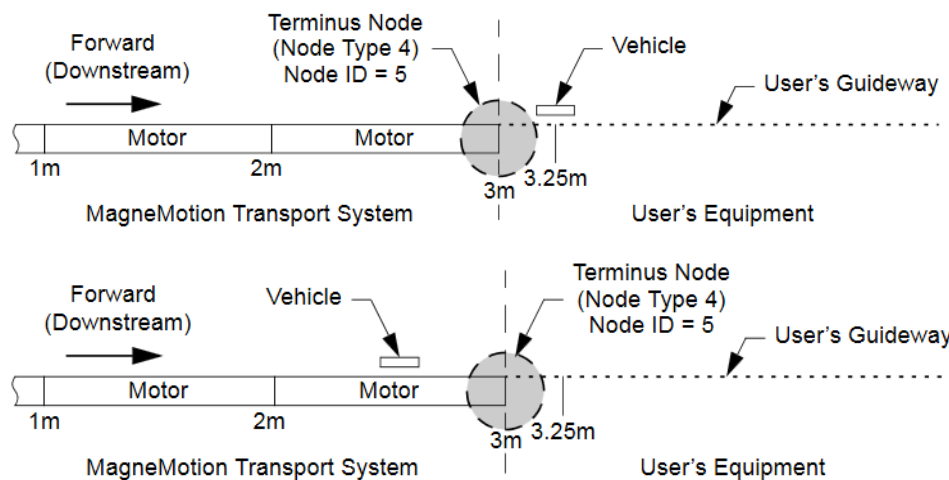
This application note presents a way to integrate the MagneMotion (MMI) transport system with an external conveyor system, such as a FlexLink® conveyor.

Introduction

Vehicles within a MagneMotion transport system are capable of moving to or from a non-MagneMotion transport system. In order to allow vehicles to exit or enter the MagneMotion transport system, the vehicle must traverse through a Terminus Node. This node type will only allow one vehicle to either enter or exit at a time. Specific considerations required to manage vehicles entering or exiting the transport system are covered in this application note.

Movement through a Terminus Node

Handshaking between the High Level Controller and the Host Controller is used to insert and extract vehicles on a Path from equipment separate from the MagneMotion transport system. Figure 1 shows vehicles approaching the terminus node from both directions.



**Figure 1: Top - Terminus Node Enter Example
 Bottom – Terminus Node Exit Example**

Handshake for Vehicle Entry onto the Transport System*

This handshake is used to allow a vehicle to enter a MagneMotion transport system Path at a Terminus Node. The handshake is designed to let only one vehicle at a time be inserted at a Terminus Node without risk of collision. Once the vehicle enters the Terminus Node, it will stop as soon as the vehicle is completely located on the motor unless a new vehicle order is given.

Handshake for Vehicle Exit onto the Transport System*

This handshake is used for removing a vehicle from a MagneMotion transport system Path at a Terminus Node. The handshake is designed to let only one vehicle at a time to leave a Path through a Terminus Nodes without risk of collision. The vehicle must be given an order to move beyond the end of the Path in order for the vehicle to exit. The destination in the order should place the entire vehicle beyond the end of the motor.

* For detailed information on the handshakes, please refer to the applicable Host Controller Communications Protocol User's Manual. See the section Related Documents.

Design Guidelines

Guidelines for designing movement to or from the MagneMotion Transport System should take into consideration mechanical integration between the custom guideway and the MagneMotion supplied guideway to allow smooth vehicle transitions.

Factors specific to a MagneMover LITE transport system to consider include:

- Ensure there is no magnetic attractive force between the magnet array and conveyor system that would cause the array to get stuck to the external conveyor and not move into the MagneMotion system.
- Extend the track or provide additional propulsion mechanisms to bridge the gap between the custom conveyor and the MagneMotion transport system. (See Figure 2)



Figure 2: Example driven conveyor transfer

- Incorporate a means to hold the entering puck in place until terminus entry is granted.

- (Optional) Implement a sensor to indicate a vehicle is ready to enter.
- Extended guideway rails for vehicles to enter or exit the MagneMotion transport system, and maintain the air gap between the magnet and the motor. (See Figure 3)

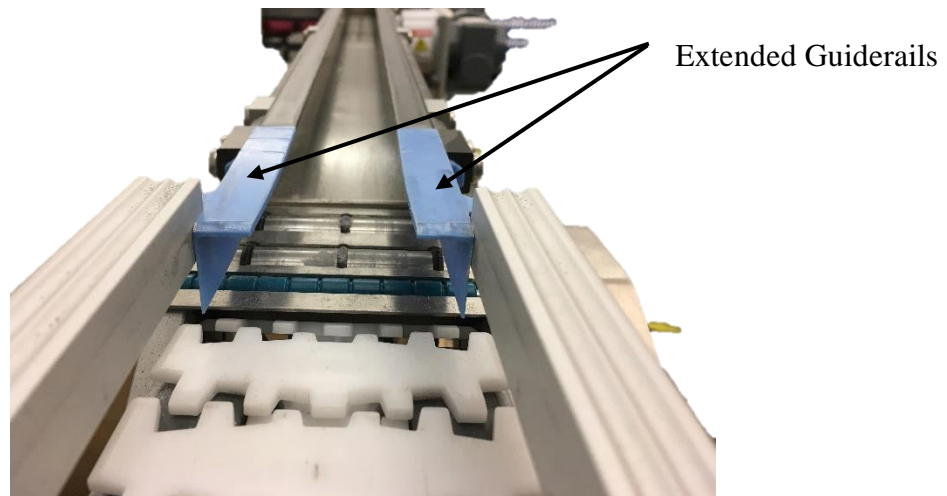


Figure 3: Custom rails to allow vehicles to maintain air gap to the motors.

- Ensure at least one configured vehicle length is available near the terminus node in the MagneMotion transport system to allow space for vehicles to enter.
- Ensure a clear space beyond the end of the path for vehicles exiting the MagneMotion transport system based on exit speed.
- If you need to maintain traceability of vehicles while outside of the MagneMotion transport system, ensure vehicles cannot be removed from the conveyor system during operation. Optionally, third party methods to read vehicle ID, such as RFID readers or barcode scanners, can be used to track products through both systems.

Summary

The MagneMotion transport system is able to interface with external conveyor systems by allowing vehicles to enter and exit the transport system through the Terminus Node Handshakes.

TECHNICAL SUPPORT NOTICE

990000857

Rev. A

MMI-AT033A-EN-P



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Related Documents:

990000437 – Host Controller EtherNet/IP Communication Protocol User’s Manual

990000436 – Host Controller TCP/IP Communication Protocol User’s Manual

990000410 – MagneMover LITE Manual

990000460 – QuickStick 100 Manual

990000496 – QuickStick HT Manual

More Information

MagneMotion Website: www.magnemotion.com

Questions & Comments: www.magnemotion.com/about-magnemotion/contact.cfm

Revision History

Rev.	Change Description
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A	Initial release
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