MagneMotion

A Rockwell Automation Company

MagneMover LITE Configurator User Manual Addendum, Magnet Array Center Offset

Original Instructions

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Overview

This document describes changes to the MagneMover® LITE Configurator utility to provide improved support of the magnet array offset configuration parameter. This change allows offsetting the center of the vehicle from the center of the magnet array for a single puck as shown in Figure 1. This change also allows offsetting the center of the vehicle from the center of the two magnet arrays in a tandem puck as shown in Figure 2. When there is a large offset between the center of the magnet array and the center of the vehicle, a second puck without magnet arrays can be used to support the vehicle as shown in Figure 3 and Figure 4.

The previous magnet array location configuration item, **Propulsion Array Offset**, is replaced with the configuration item, **Magnet Array Center Offset**. The **Propulsion Array Offset** defined the distance from the center of the vehicle to the front edge of the magnet array. Since only vehicles with MagneMover LITE magnet arrays are used in the transport system, the **Propulsion Array Offset** was not used, and vehicles were always considered to be centered over the magnet array.

The new magnet array location configuration parameter, **Magnet Array Center Offset**, defines the distance from the center of the vehicle to the center of the magnet array. The following sections provide examples of usage and describe the changes to the MagneMover LITE Configurator utility.

Support for the changes that are described in this addendum starts with MagneMover LITE Configurator version 13.2.6.

Related Documents

This document references the following manuals:

- *MagneMover LITE Configurator User Manual*, MMI-UM008.

NOTE: Distribution of this manual and all addendums and attachments are not controlled. Changes to the document set or the software can be made at any time. To identify the current revisions or to obtain a current version, see Rockwell Automation Support on page 10.

Using the Magnet Array Center Offset

To control the vehicles on the MagneMover LITE transport system, motors must know both the size of the vehicle and location of the center of the vehicle in relation to the center of the magnet array. Both of these partameters are defined in the Node Controller Configuration File using the Configurator.

When defining a configuration with the vehicle shape set to linear, the **Magnet Array Center Offset** defines the distance from the center of the vehicle to the center of the magnet array. For a vehicle with a payload centered on either a single puck or a tandem puck this distance is zero. For a vehicle with an offset payload, the offset from the center of the vehicle to the center of the magnet array must be entered in the **Magnet Array Center Offset** parameter. The **Magnet Array Center Offset** defines both the direction and distance of the magnet array from the center of the vehicle.

Defining a magnet array offset defines the front and back of the vehicle in relation to the magnet array. If vehicles are removed from the transport system, their original orientation must be used when they are returned to the transport system.

For a small magnet array center offset, the puck can support the vehicle without tipping as shown in Figure 1 and Figure 2. If the offset is large enough to cause the vehicle to tip, a second puck without a magnet array can be added to either the front or back of the vehicle to provide additional support for the vehicle as shown in Figure 3 and Figure 4. When adding a second puck to the vehicle, both pucks must be connected to the vehicle through pivots to allow each puck to rotate independently under the vehicle while moving through curves. Make sure that the supporting puck does not have a magnet array.

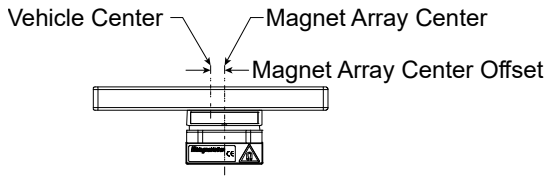

Figure 1: Array Offset Using One Puck

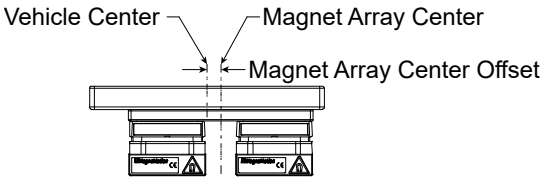

Figure 2: Array Offset Using Tandem Puck

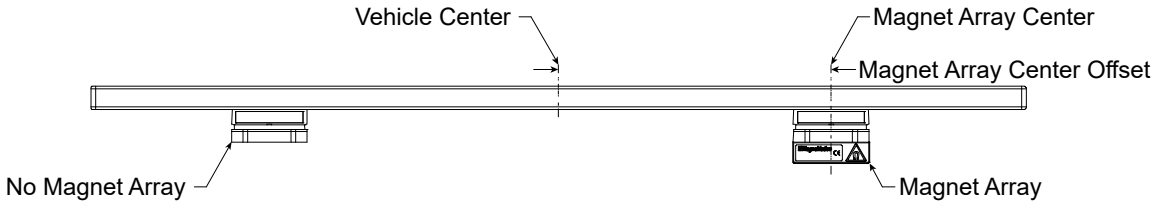

Figure 3: Array Offset Using Two Single Pucks

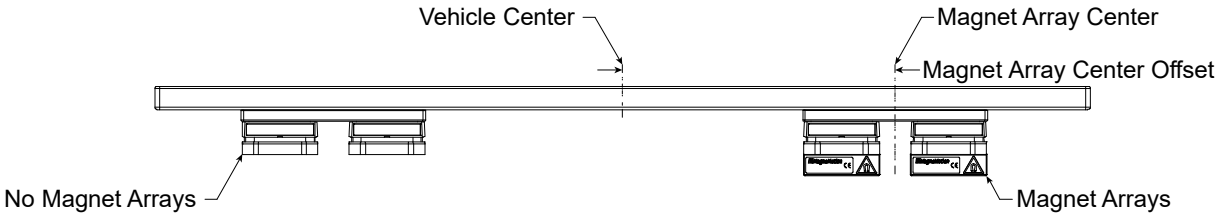

Figure 4: Array Offset Using Two Tandem Vehicles

UI Reference

This section describes the changes to the Vehicle section of the Motor Defaults page in the MagneMover LITE Configurator user interface.

Motors

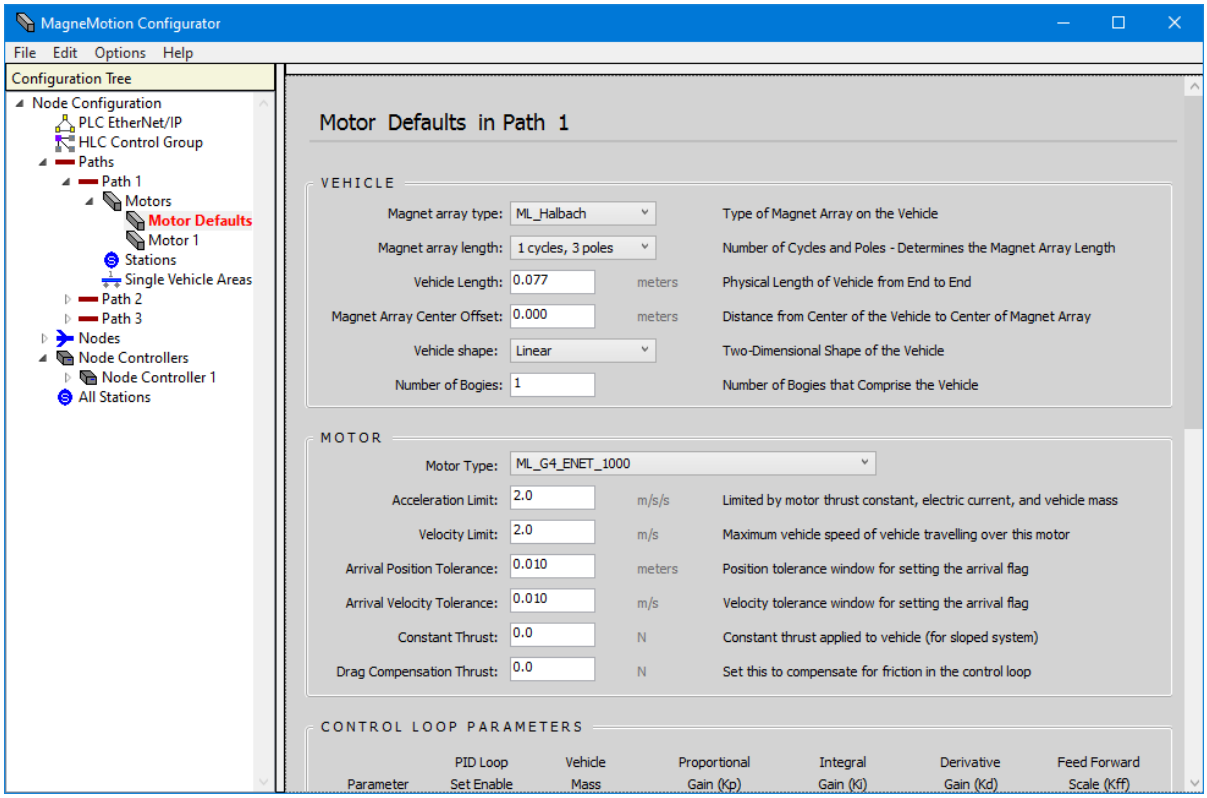

Figure 5: MagneMover LITE Configurator, Motor Defaults Page

Vehicle

- **Magnet array type** – Identifies the type of magnet array that is used on the vehicle. See the *MagneMover LITE Configurator User Manual*.

- **Magnet array length** – Identifies the length of the magnet array that is used for movement and position sensing. See the *MagneMover LITE Configurator User Manual*.

- **Vehicle Length** – When a **Vehicle Shape** of Linear is selected, this value is the physical length of the vehicle in meters (0.062 m to 1.50 m). The default is 0.077 m. If the track has curves or switches in it, the vehicle length must be configured so that it is equal to the longest dimension of the vehicle (typically corner to corner). This extra length is used to help keep vehicles from colliding with each other when moving through curves. See the *MagneMover LITE Configurator User Manual*.

- **Magnet Array Center Offset** – When the **Vehicle shape** is set to linear, this offset is the distance from the physical center of the vehicle to the physical center of the propulsion magnet array in meters (+/- 750 mm). A positive value specifies the magnet array is downstream from the center of the vehicle (that is, at the vehicle front). A negative value specifies the magnet array is upstream from the center of the vehicle. See Figure 1 through Figure 4. When a tandem puck is being used, this offset is the distance from the center of the vehicle to the mid-point between the two magnet arrays. When the **Vehicle shape** is set to rectangular, this offset is disabled. The default is 0.0 m.

  The **Magnet Array Center Offset** and the **Vehicle Length** are used to define the location of the front and back edges of the vehicle (puck) when using linear dimensions for collision avoidance purposes.

- **Vehicle shape** – Identifies the type of vehicle in use. The default is Rectangular.
  - **Linear** – Only the length of the vehicle is used for collision avoidance. On curved paths, a longer length must be specified to account for the effects of the width of the vehicle, which causes extra space between vehicles on a straight path.
  - **Rectangular** – The length, width, and position of the magnet array for the vehicle are used for collision avoidance. The system performs all necessary calculations to provide proper spacing of vehicles without collision in both curves and straight sections of a path. Refer to the *MagneMover LITE Configurator User Manual*.

- **Number of Bogies** – The number of sections on the bottom of a vehicle that contain magnet arrays. Refer to the *MagneMover LITE Configurator User Manual*.

Revision History

Ver.	Change Description
A	Initial release

Rockwell Automation Support

Use the following resources to access support information.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, Product Notification Updates, and the Direct Dial Code for your product	rok.auto/support
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	rok.auto/pcdc.
Product Catalog and Configurator	Additional product information including CAD drawing files, 3D models, photos, and more.	rok.auto/configure

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