

Standard Training

Plant Tour – Provides an overview of the MagneMotion® facilities, including; Manufacturing, Software Test, Hardware Test, Service and Support, and RMA.

Safety – Describes the regulatory standards MMI products adhere to. Covers safety issues that are related to MMI transport systems, specifically; pinch and crush points, component weight, auto-move hazards, electrical hazards, and proper magnet handling.

Product Overview and Architecture – Provides an introduction to the system architecture and components. Identifies the terms and concepts that are involved in all MagneMotion product lines. Which includes hardware, motor blocks, collision avoidance, forward direction, and Paths and Nodes.

Motor Blocks, Advanced – Describes how motor blocks are used for anti-collision, and how brick-wall headway and vehicle spacing are calculated for all MagneMotion product lines.

Paths and Nodes, Advanced – Provides an in-depth guide to the available Node types for both MM LITE and QS systems using sample layouts and exercises.

Configurator, Basic – Provides an introduction to the Configurator utility for MagneMotion transport systems. Describes how to configure the basic parameters that are used to create a valid Configuration File. For MM LITE™ systems this section also provides an introduction to the Track Layout function, which is used to create a system layout graphically.

Configurator, Advanced – Describes the advanced functions and features of the configuration utility. Includes configuring parameters such as vehicle length, simulated vehicles, different sets of PID values, and arrival tolerances.

Node Controller Interface, Basic – Provides an introduction to the NC Web Interface for MagneMotion transport systems. Includes configuring a Node Controller for simulation of a MagneMover® LITE system.

Node Controller Interface, Advanced – Provides additional exposure to the NC Web Interface for MagneMotion transport systems. Includes reviewing the system status that is provided by the NC Web Interface for real or simulated systems, and how to view and download log files.

NCHost, Basic – Provides an introduction to the NCHost TCP Interface utility for MagneMotion transport systems. This utility is used to reset and start up systems, send manual vehicle commands, run an example demonstration script, and monitor system status for simple troubleshooting.

NCHost, Advanced – Provides in-depth coverage of the NCHost TCP Interface utility. Includes hands-on experience for reset and startup of a system, sending manual vehicle commands, using demonstration scripts, and monitoring system status for simple troubleshooting purposes.

MM LITE System Installation – Describes how the MagneMover LITE track is constructed, motor mounting, and how to introduce pucks to the system.

QS System Installation – Describes typical QuickStick® track and vehicle construction, magnet array mounting, and motor mounting.

System Build Lab – Provides hands-on experience assembling a basic MagneMotion transport system. Understand both the power and communication connections for the system, how to modify an existing system by adding or removing components, and the differences between MM LITE and QS systems.

Virtual Scope – Provides an introduction to the Virtual Scope utility for MagneMotion transport systems. Includes configuring the Virtual Scope to collect data and communicate with the motors, to display and analyze data, and to use custom Scope Configurations.

Tuning and Motor Control – Describes PID control basics, effect of PID parameters on system behavior, PID tuning on an MMI Transport System, using the Virtual Scope for PID Tuning, and disabling motor control.

System Sizing – Provides an overview of MagneMotion transport system limits and how to determine which MMI system to use. For MM LITE systems, estimate the power requirements. For QS systems, identify the maximum motor spacing, the relationship between motor spacing and thrust, providing information to MMI for QS system sizing, and how to read the output of the motor sizing worksheet.

Design Considerations – Describes how to check layout feasibility, identify valid station locations, confirm correct vehicle length, confirm sufficient space for Startup on QS systems.

Layout Optimization – Describes general guidelines to consider when designing layouts involving MagneMotion transport systems for optimal throughput. Covers parallel processing, auto queuing, predictive queuing, intelligent routing, and down machine avoidance.

QS 100 Power Distribution – Describes how to distribute power on QS100 systems.

NC Platform – Provides an overview of the Node Controllers available. Describes how to implement Digital I/O in the system using an NC-12.

Application Development, AB PLC – Use an Allen-Bradley® PLC running RSLogix® and the MMI sample program to move vehicles on a MagneMotion transport system. Understand error and status information on the PLC and use the MMI sample ladder logic to write a simple loop-based program. Features of the code are reviewed, but the code is not reviewed line by line.

Application Development, Mitsubishi PLC– Use a Q or L Series Mitsubishi® PLC and the MMI sample program to move vehicles on a MagneMotion transport system. Understand error and status information on the PLC and use the MMI sample ladder logic to write a simple loop-based program. Features of the code are reviewed, but the code is not reviewed line by line.

Application Development, TCP/IP API – Introduction to the message format for TCP/IP communications. Review use of the NCHost utility as it relates to TCP application development.

Simulation – Covers system simulation, including the necessary software and hardware components.

Testing Spare Parts – Describes how to test and program spare parts for rapid replacement of failed parts.

Troubleshooting, Basic – Describes the tools available for troubleshooting, learn to parse log messages including message format, sources, types, and meaning. Identify the most common faults, identify fault locations in the system based on status feedback, and determine corrective actions to restore system function.

Troubleshooting, Advanced – Provides hands-on exposure to troubleshoot and return to operation a MagneMotion transport system by reviewing logs to identify faults.

System Shutdown and Recovery – Describes the best method to start up and shut down a system. How to implement E-Stops (Motion Stop) and Interlocks through the NC-12 Node Controller using the Suspend and Resume commands.

Reporting to MMI – Describes how report issues to Applications Engineering at MagneMotion.

Q&A – Provides a Question and Answer session with Applications Engineers to answer system-specific questions.

Extended Training

SYNC IT Overview – Describes the difference between standard MagneMotion vehicle control and the SYNC IT™ LSM Synchronization Option vehicle control.

SYNC IT Setup – Describes the hardware and software configuration required steps for the LSM Synchronization Option setup.

SYNC IT Programming – Describes the programming and control configuration that is required for LSM Synchronization operation of vehicles in a SYNC zone. Includes message format, message sources, message types, and the meaning of messages.

SYNC IT Troubleshooting – Provides guidelines for troubleshooting unexpected operation, including; vehicle not under SYNC IT control, reported position incorrect, vehicle not moving through entire Sync Zone.

SYNC IT Hands-on Lab – Provides hands-on experience with the LSM Synchronization Option on a system by sending asynchronous and synchronous vehicle commands.