

## ClearLink Motion Examples README Document

*For Use with Allen-Bradley CompactLogix Controllers*

*Revision Date: 5/8/2025*

This zip file contains example ladder logic routines designed for use with Teknic ClearLink Motion and I/O Modules as used with Allen-Bradley CompactLogix<sup>1</sup> controllers. All example routines were created in Rockwell Studio 5000 Logix Designer. Each example includes a PDF of the actual ladder diagram (with rung comments).

### List of Example Routines Included

- SD\_Position\_Move.L5K (example of basic positioning moves).
- SD\_Velocity\_Move.L5K (example of basic velocity moves).
- SD\_Homing.L5K (example of hard stop homing and sensor homing).
- SD\_Jog.L5K (example of jogging back and forth using digital inputs).

### Components Used To Create These Routines

- Allen-Bradley CompactLogix Controller, Model # 1769-L16ER-BB1B.
- Teknic ClearLink Motion Control & IO Module.
- Teknic ClearPath-SD (Step & Direction) motor. Any ClearPath-SD model will work.
- ClearLink compatible home sensor (needed only for sensor homing example, omit for hard stop homing).
- Appropriate power supplies for above components.

### How to Use These Examples:

- Create a new project **from import**, selecting the L5K file of interest in Studio 5000.
- Set the controller model to match your controller.
- Point the controller Path setting to your controller.
- Ensure the IP Address of the ClearLink module in Studio 5000 matches your ClearLink's IP Address.
  - **Need help setting the IP Address of your ClearLink?** Follow the instructions in the ClearLink Network Configuration section of the [ClearLink Object Reference](#)

### READ THESE IMPORTANT USE NOTES

- **Read the rung comments in each routine.** The rung comments contain important instructions you will need. If you do not see rung comments in your project's ladder layout, turn them on in Studio 5000. See Studio 5000 "Help" for guidance on how to turn on rung comments.
- **Configure Your ClearPath motor before use (follow all steps)**
  1. Follow the Quick Start Guide for your ClearPath motor (located in its respective user manual)
    - [ClearPath-MC/SD NEMA 23 and 34 Models](#)
    - [ClearPath-MC/SD IP66K/IP67 Models](#)
    - [ClearPath-MC/SD NEMA 56, 143, 145, & IEC D100 Models](#)
  2. Auto-tune your motor using the MSP Software before using (unless the motor is unloaded)
    - [How to Auto-tune a ClearPath Motor \(YouTube Video\)](#)
  3. Ensure your ClearPath is properly configured to communicate with ClearLink (**refer to the following pages for detailed instructions**)

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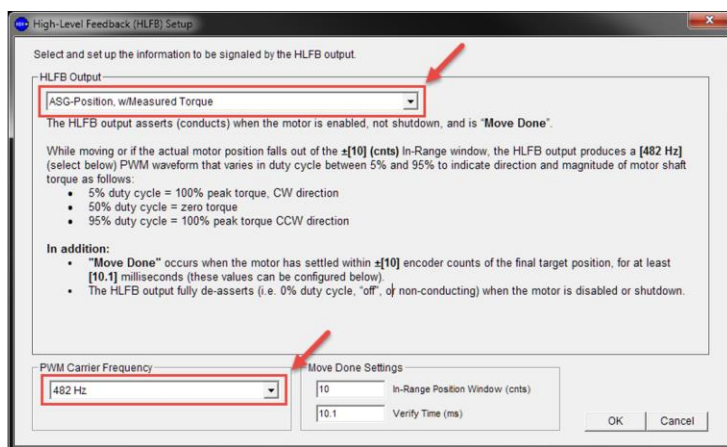
<sup>1</sup> Other Allen-Bradley controller models/families may be compatible with these examples. Please contact Allen-Bradley with questions regarding the features and capabilities of your specific controller.

## Configuring a ClearPath-SD Servo

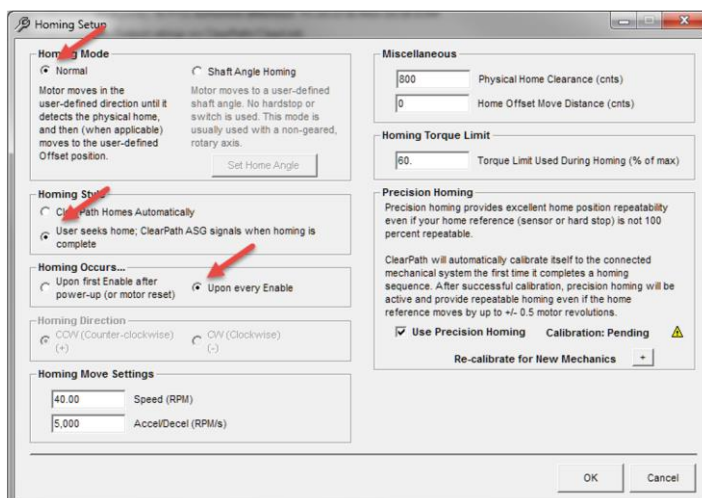
The ClearPath motor settings must be set using the MSP software to enable all features of ClearLink's Step and Direction control.

*Note: this section is not intended to be a comprehensive setup guide for ClearPath. It will only cover the specific settings recommended for ClearLink to correctly interface with a ClearPath-SD servo. Refer to the user manual of your ClearPath series for additional configuration and setup information.*

1. Configure ClearPath to use the correct High-Level Feedback (HLFB) mode
  - a. In MSP, click the "Advanced" tab, then "High-Level Feedback"
  - b. Select the HLFb mode "ASG-Position, w/Measured Torque"
  - c. Select the 482 Hz PWM Carrier Frequency



2. Configure ClearPath with the correct homing settings (this is only necessary when using hardstop homing)
  - a. In the Homing section of MSP, enable homing and click "Setup..."
  - b. Select "Normal" homing mode
  - c. Select "User seeks home"
  - d. Select homing "Upon every Enable"



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## Configuring a ClearPath-MC Servo

ClearPath-MC servos are only recommended with ClearLink for applications that require variable torque control and have no precise positioning requirements. If the application requires positioning and/or velocity control, consider using the ClearPath-SD servo motors instead.

There are no specific motor settings required to make ClearPath-MC servos compatible with ClearLink. Consideration should be given in selecting the operating mode and HLFb settings appropriate for the application. The two options for torque operational modes are **Follow Digital Torque** and **Follow Digital Velocity w/ Variable Torque**. Configure the ClearPath-MC servo in the correct torque control mode for your application.

**Note:** *The ClearLink motor connectors can output PWM signals, but not variable digital frequency signals. When using one of the torque operational modes mentioned above, be sure to select one of the PWM-controlled versions of the mode.*