MULTI-SENSOR POSITIONING: BI-DIRECTIONAL (HOME TO HARD STOP)

Available on MCPV

MODE DESCRIPTION

Move to a maximum of 16 different positions using simple I/O from your PLC, microcontroller or similar to control ClearPath's direction and position.

Wire up to 16 switches or sensors in series with Input B. Assert the Enable Input to energize the motor windings. Once homing is complete, a trigger pulse starts ClearPath moving in the direction indicated by Input A. When Input B sees a count of transitions equal to the count of trigger pulses, ClearPath will ramp to a stop at the user-defined rate. (These transitions are typically switch closures or sensor interruptions.)

Position Control **Multi-Sensor Position: Bi-directional (Home to Hard Stop)**

Signal	Function	Input Type	Example Timing
Input A	Direction Select	Logic: High=CW Low=CCW	
Input B	Sensors	Logic: High=On Low=Off	
Enable/ Trigger	Enable Trigger	Logic: High=Enable Low=Disable Pulse Enable line low to trigger moves	
Notes: ClearPath must be homed before use. Moves are triggered on rising edge of trigger pulse.			p+ P2 P3 P2 P1 P1 t p- Home *Motor position vs. time*

Trigger pulse

I/O FUNCTIONS

Enable Input - Asserting this input energizes the motor shaft. A short pulse (user-definable) on this input is the trigger that starts a move. (A "pulse" is a momentary interruption of current into the Enable input.)

Input A - This input selects the direction of rotation.

Input B - Transitions on this input count up until they equal the count of transitions seen on Input A, at which time ClearPath will ramp to a stop.

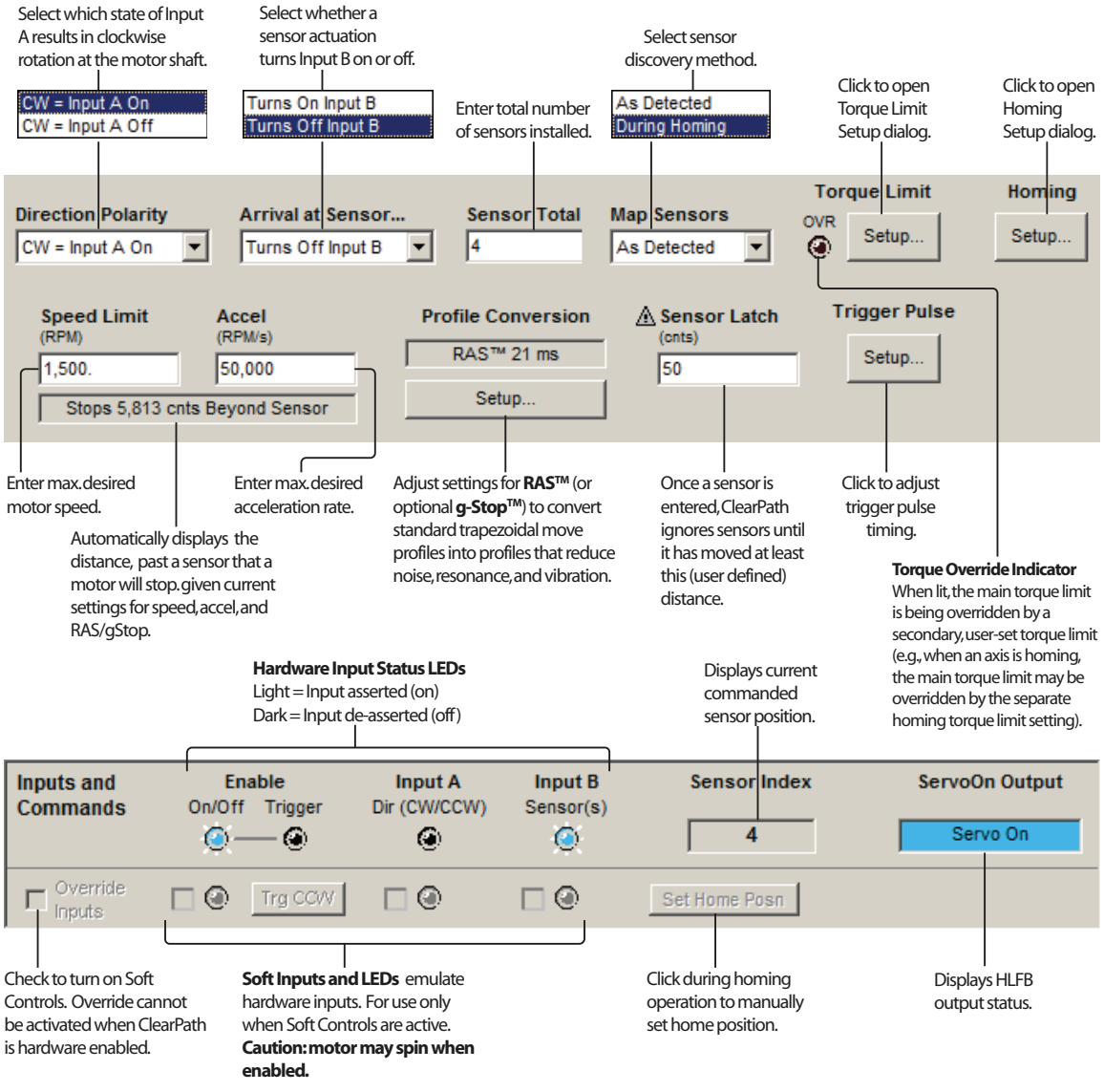
Output (HLFB) - See HLFB section for available modes.

Notes:

- Up to 16 sensors/switches can be placed along an axis and their outputs wired-ORed for multiple stops.
- Multiple trigger pulses issued in the same direction before a sensor is detected will cause the motor to continue through the number of sensors matching the number of pulses seen. Example: If you send 3 trigger pulses, ClearPath moves to the third sensor position.
- ClearPath will always finish moves in one direction before executing moves commanded in the other direction.

- Homing is required in this mode; it can be performed upon first enable after power up, or upon every enable.
- Time to disable depends on trigger pulse setting. i.e. a longer trigger pulse setting will result in a longer time to disable.
- Once all sensors are mapped, the motor will stop at the same position each time, regardless of the direction of approach.

MODE CONTROLS



MULTI-SENSOR POSITIONING: UNIDIRECTIONAL (SENSORLESS HOMING)

Available on MCPV

MODE DESCRIPTION

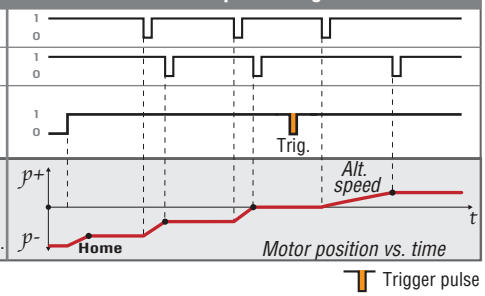
Use simple I/O from your PLC, microcontroller etc. to command ClearPath to move to the sensor or switch of your choosing. Direction, speed, and acceleration are all user-defined in MSP.

This mode starts by finding a user-defined, shaft angle home position. Then, upon seeing a transition on Input A, ClearPath will start to move in one, fixed, user-defined direction, at one of two velocities. ClearPath will ramp to a stop at the user-defined rate when Input B has seen a count of transitions equal to the count of transitions on Input A. (These transitions are typically switch closures or sensor interruptions.)

Position Control **Multi-Sensor Position: Unidirectional (Sensorless Homing)**

Signal	Function	Input Type	Example Timing
Input A	Start Move	Start on rising or falling edge*	
Input B	Stop Move (Sensor)	Stop on rising or falling edge*	
Enable/ Trigger	Enable Trigger	Logic: High=Enable Low=Disable Pulse Enable line for Alternate Speed	

Notes: ClearPath can be programmed to home upon enable (see text for details). *User may select rising or falling edge for input action (via MSP setup software). This diagram shows moves starting on the falling edge of Input A and stopping on the falling edge of Input B. Pulse Enable to execute next move at alternate speed.



I/O FUNCTIONS

Enable Input - Asserting this input energizes the motor shaft. A short pulse (user-definable) on this input tells ClearPath to use the alternate speed limit setting for the next move. (A "pulse" is a momentary interruption of current into the Enable input.

Input A - A transition on this input starts a move. You can define whether the move starts on a rising or falling transition.

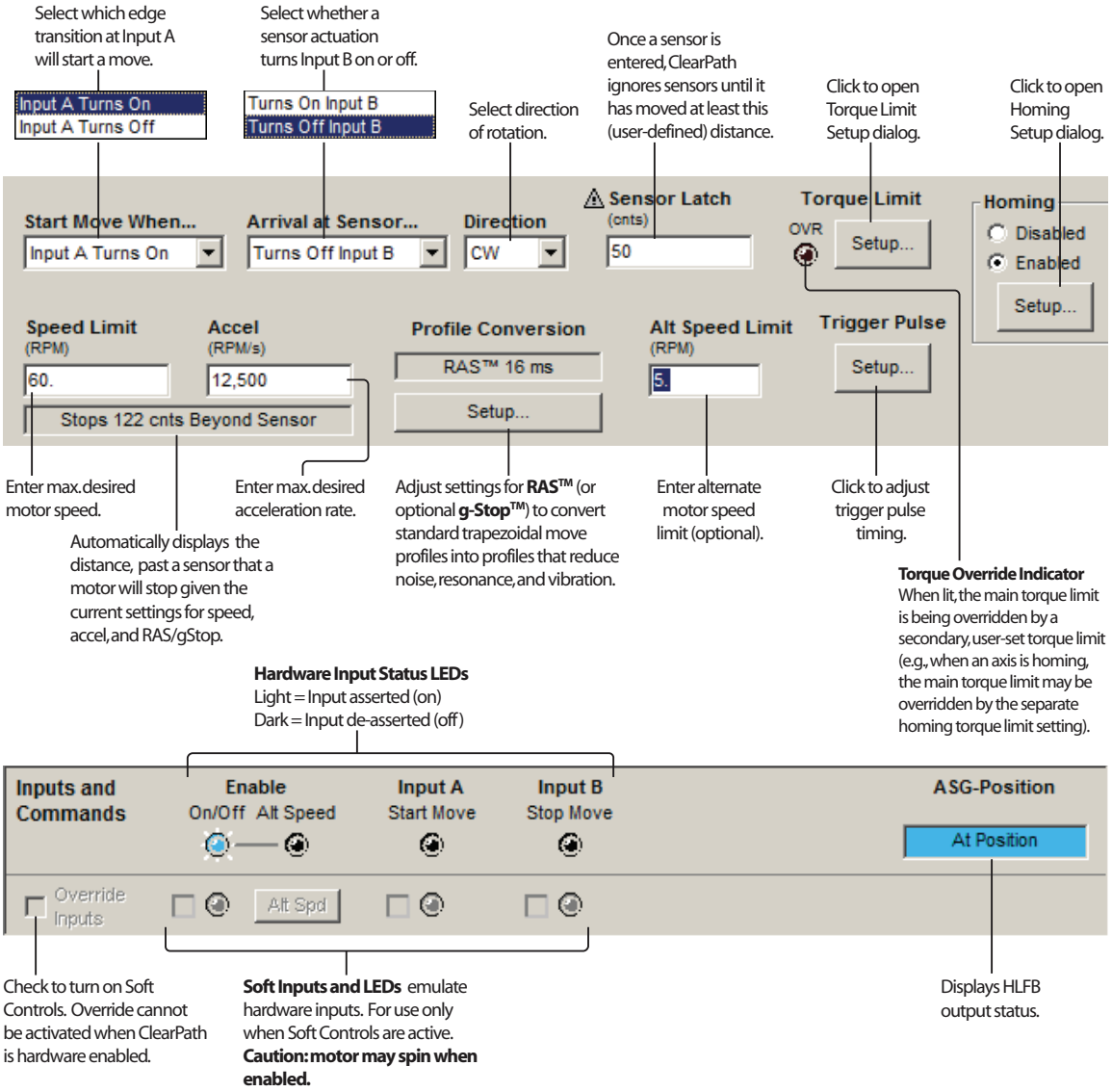
Input B - Transitions on this input count up until they equal the count of transitions seen on Input A, at which time ClearPath will ramp to a stop.

Output (HLFB) - See HLFB section for available modes.

Notes:

- This mode can also be used without homing if all the desired stopping locations are equivalent (e.g., an indexing table with four positions spaced an even 90 degrees apart).

MODE CONTROLS



MULTI-SENSOR POSITIONING: UNIDIRECTIONAL (HOME TO SENSOR)

Available on MCPV

MODE DESCRIPTION

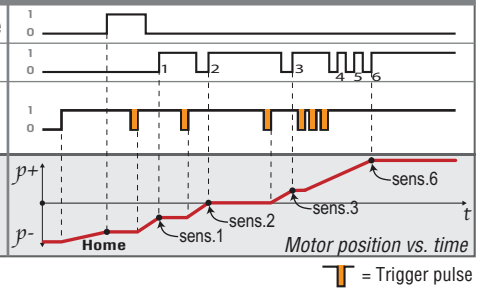
Use simple I/O from your PLC, microcontroller etc. to command ClearPath to move to the sensor or switch of your choosing. Direction, speed, and acceleration are all user-defined in MSP. Optional homing (home-to-sensor) is available.

This mode starts by finding a home sensor wired to Input A. Then, a "trigger" pulse on the Enable input starts ClearPath moving in one, fixed, user-specified direction. When Input B sees a count of transitions equal to the count of trigger pulses, ClearPath will ramp to a stop at the user-defined rate. (These transitions are typically switch closures or sensor interruptions.)

Position Control **Multi-Sensor Position: Unidirectional (Home to Sensor)**

Signal	Function	Input Type	Example Timing
Input A	Home Sensor	Logic: High=in Home* | Low=not in Home	
Input B	Sensors	Edge: Stop move on edge transition**	
Enable/ Trigger	Enable Trigger ⊓	Logic: High=Enable Low=Disable Pulse Enable Input to trigger moves	

Notes:
* User can invert Home switch operating polarity in MSP.
**Diagram shows moves stop on rising edge (transition) of Input B. User may specify either rising or falling edge in MSP.



⊓ = Trigger pulse

I/O FUNCTIONS

Enable Input - Asserting this input energizes the motor shaft. A short pulse (user-definable) on this input is the trigger that starts a move. (A "pulse" is a momentary interruption of current into the Enable input.)

Input A - This input is connected to the home switch. Homing options are set in the Homing Setup dialog.

Input B - Transitions on this input count up until they equal the count of trigger pulses seen on the Enable input, at which time ClearPath will ramp to a stop.

Notes:

- ClearPath can be programmed to home upon enable. If homing is not needed because all the desired stopping locations are equivalent (e.g., an indexing table with four positions spaced an even 90 degrees apart), consider using the Rotary with Sensorless Homing mode. This will allow the use of a second, alternate move velocity if desired.
- Moves are triggered by quickly pulsing the Enable input. Moves stop when sensor count at Input B matches trigger pulse count.
- Trigger pulses made in rapid succession result in longer, continuous moves.

MODE CONTROLS