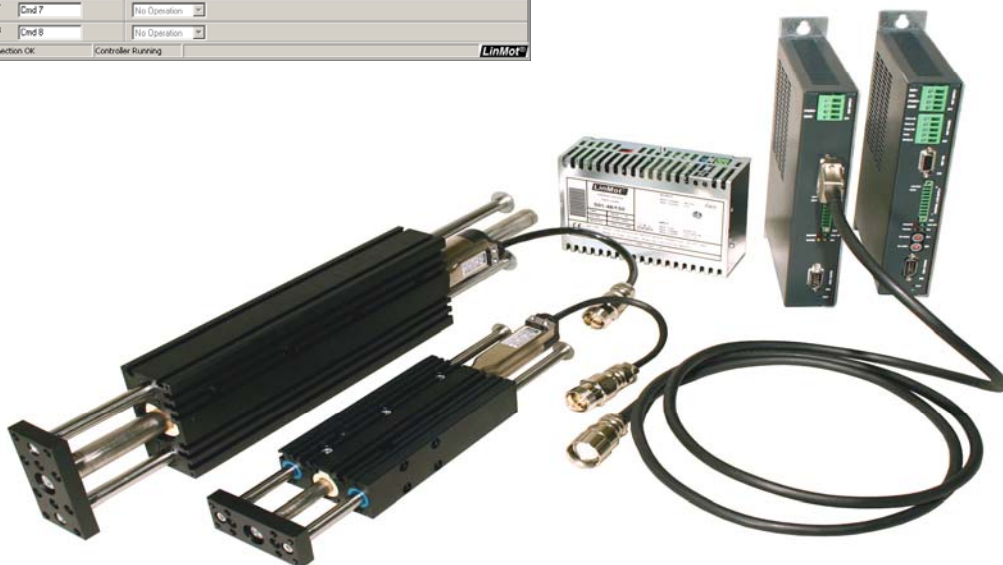


Multi Position Cylinder



Teaching MPC Position Setpoints with Digital Inputs

Addendum to MPC 3.2 User Manual

New Feature: The MPC Controller Can Learn Position Values

The big advantage of a MPC axis in comparison to a conventional pneumatics solution is the ability to have up to 256 positions stored on the controller. No time consuming adjustment of mechanical stops in case of switching an assembly line from one product to the other is necessary. On the MPC controller the corresponding set positions for the various products are stored.

The MPC Configurator is a very comfortable tool for defining these position values. The big memory allows programming of all the application and product specific setpoints.

Since version 3.1 Build 20050831 of the MPC Software a new feature is implemented in the firmware. The feature allows changing setposition values without using the MPC Configurator or any other tool. **The operator can move the motor to any position and then prompt the controller to learn that value.**

Once the position values for a product are taught in, they remain in the non-volatile memory of the controller. Teaching position values for new products is absolutely easy and requires neither a computer nor software knowledge.

Hardware Requirement

The new teach feature is available on controllers of type E1100-MT(-HC) and E1100-GP(-HC). Controllers consigned before September, 1st 2005 don't have implemented the feature in the originally loaded firmware. The firmware on these older controllers can easily be upgraded. Just download the latest MPC Software package from www.linmot.com and install the corresponding firmware according to the instructions in the MPC 3.1 User Manual.

In order to enable the teach functionality the dipswitch S3.4 on the controller bottom side must be set to 'On' (must be done before the controller is powered on).



The following digital inputs are used with the teach feature:

Pin	Function
X4.7	Jog +
X4.8	Jog -
X4.9	Teach

Teach Procedure

The teach functionality allows modifying the position value of any 'Absolute Move' command. MPC command line entries, which are not defined to be 'Absolute Move' commands can not be affected.

⇒ *The base MPC configuration (actuator and payload definition, command type selection, moving speed, etc.) must be created by using the MPC Configurator tool. The teach feature only modifies the position value of predefined Absolute Move commands.*

In order to avoid resource conflicts, the controller should not be connected with the PC, when the teach functionality is used.

Step 1: Command selection

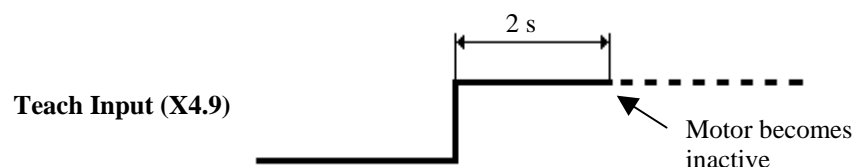
Before a position value can be modified, the corresponding command must be selected. Command selection takes place through execution of the corresponding 'Absolute Move' command (see chapter 5.6 in MPC 3.1 User Manual). Command execution is possible only if the controller is in Enabled state and the homing procedure has been executed before.

Step 2: Moving the motor to the new position value

With the digital inputs Jog+ and Jog- the motor can be moved forward and backward (in closed loop position control mode). Each rising signal edge will shift the motor's setposition for 0.25mm.

It is also possible to position the motor manually. There are two ways to switch off the motor:

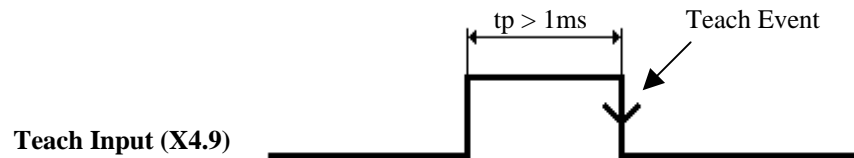
- By releasing the Enable signal (pin X6.1), the motor can be brought to Disabled state. Then the operator can move the motor manually to the new wanted position.
- By setting the Teach Input signal to 'High' (pin X4.9) and holding it on that level for more than 2 seconds:



After the Teach signal is high for 2 s, the MPC controller limits its output current to 0A and the motor can be moved manually. Please consider that the controller remains in Enabled state and the brake output (pin X4.3) remains active (mechanical brake keeps being released, this would not be the case in Disabled state).

Step 3: Teaching the new position value

The motor's actual position is taken as new setpoint when a falling edge on the Teach Input (X4.9) is detected.



The position value will automatically be stored in the non-volatile memory of the controller. If the time tp was more than 2s (motor became inactive), the motor is powered on again just after the teach event (of course only if Enable signal is still high).

In order to avoid teaching by accident, the dipswitch S3.4 should be turned off and the controller reset after the positions are redefined.