
LinMot®



Quick start help for the following controllers:

B1100-PP (-HC, -XC)



Quick Start Guide B1100-PP

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Note

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System Overview

This manual gives a short step by step introduction to the functionality of the B1100-PP(-HC/-XC) servo controller family.

References

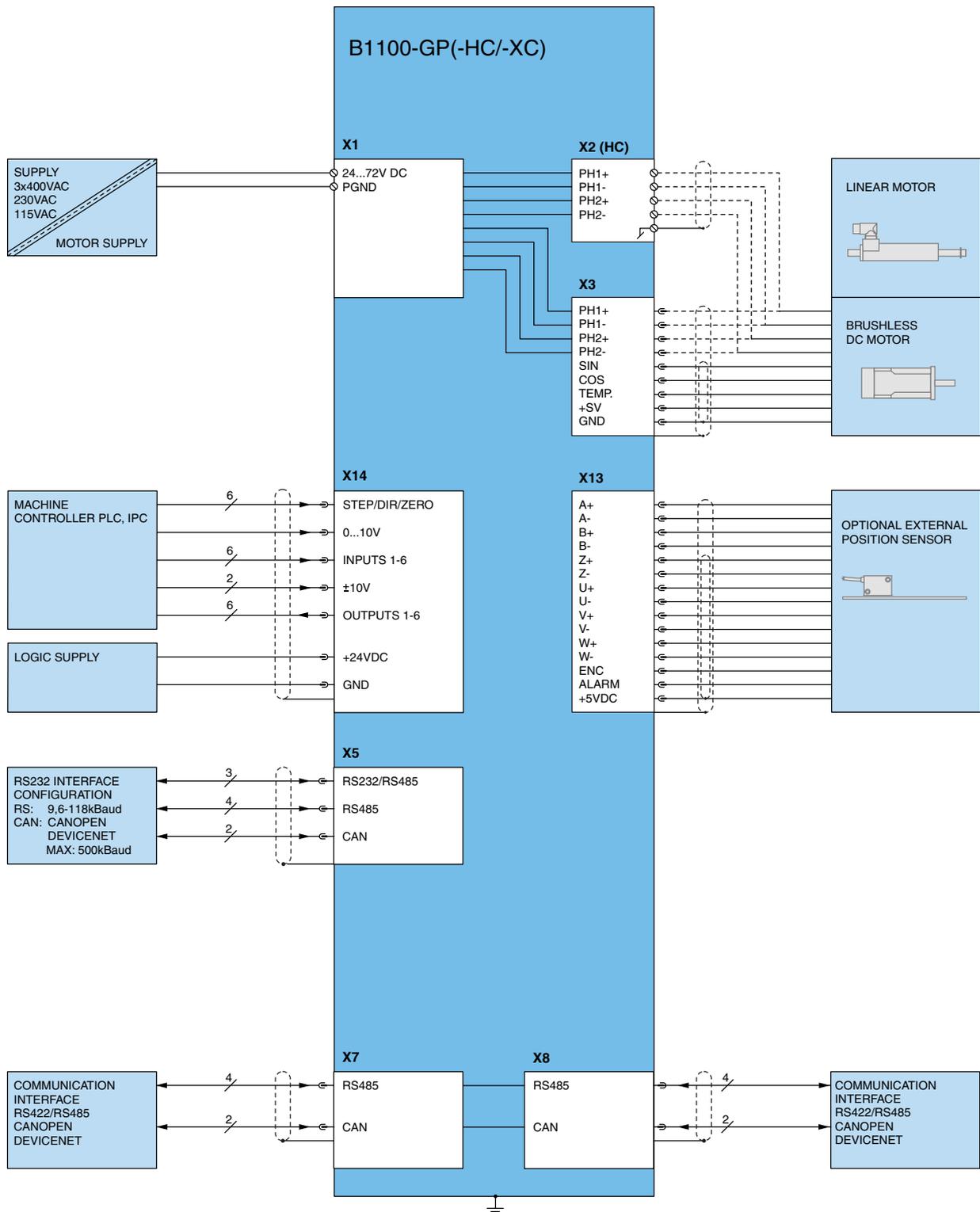
Ref	Name	Source
1	Installation_Guide_B1100.pdf	www.linmot.com
2	Usermanual_LinMot-Talk1100.pdf	www.linmot.com
3	Usermanual_EasySteps_Appl_1100.pdf	www.linmot.com
4	Usermanual_MotionCtrlSW_1100.pdf	www.linmot.com

The documentation is distributed with the LinMot-Talk1100 configuration SW, which can be downloaded from the LinMot homepage for free.

For more detailed information about the functionality of the SW please refer to the manuals above:

- Installation_Guide_B1100.pdf:
data sheet, wiring and connections
- Usermanual_LinMot-Talk1100.pdf:
how to use the configuration software
- Usermanual_EasySteps_Appl_1100.pdf :
EasySteps application software description (smart control word behavior, analog parameter scaling and IO motions)
- Usermanual_MotionCtrlSW_1100.pdf:
motion controller software description (State machine, motion interface)

Wiring



Typical servo system B1100-XX-YY: Servo controller, motor and power supply.

Getting Started

Connect the motor to the controller, wire at least the motor power supply on X1 and the 24VDC logic supply on X14.

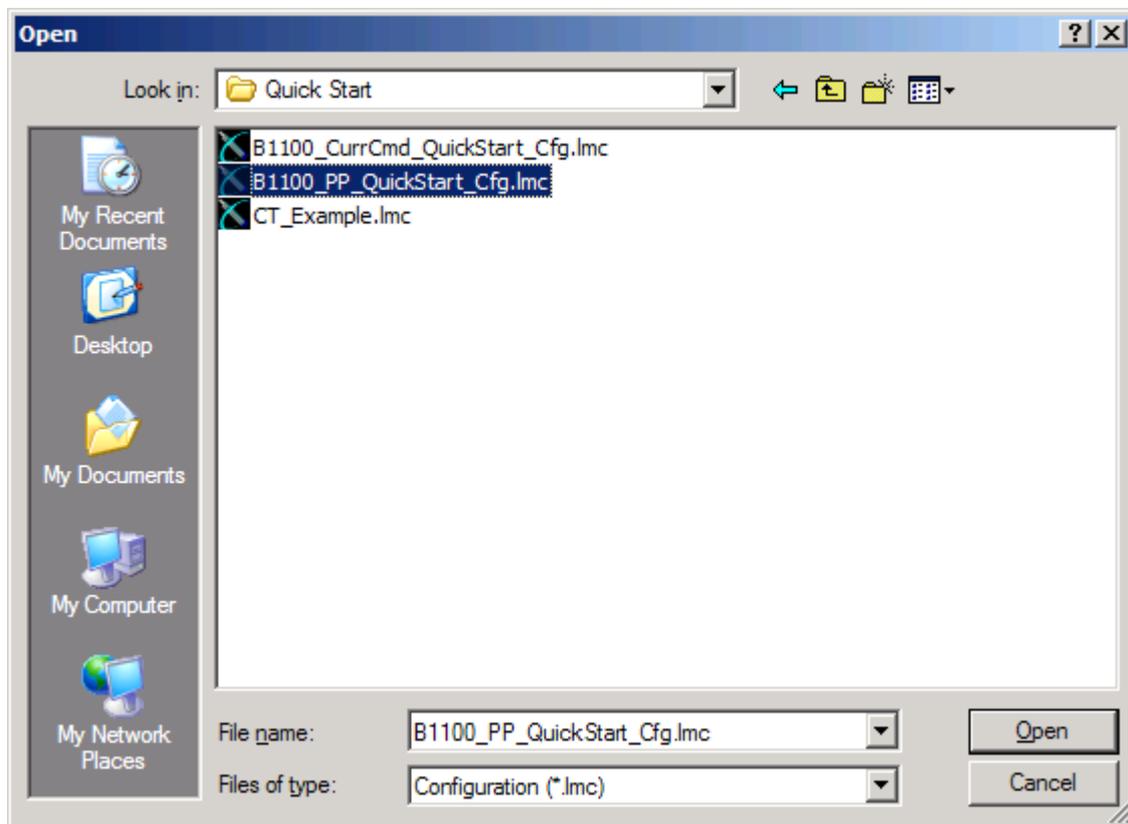
Connect your configuration PC using a 1:1 serial RS232 cable (female/female) with the servo controller X5.

Switch on the 24V logic supply.

Start the LinMot-Talk1100 software.

Login the servo controller.

Import the B1100_PP_QuickStrt_Cfg.lmc configuration file:



Start the motor wizard to configure your motor type, follow steps 1 to 9:

Motor Wizard
_ □ ×

Step 1/9: Actuator Selection

Actuator Data File: PS01-37x120-HP.adf Change Actuator ...

Stator: PS01-37x120-HP-C20 ▾

Slider: PL01-20x600/540-HP ▾

The slider can be identified by its length. Newer sliders have the type engraved on the surface.

Slider Mounting Direction: Regular ▾

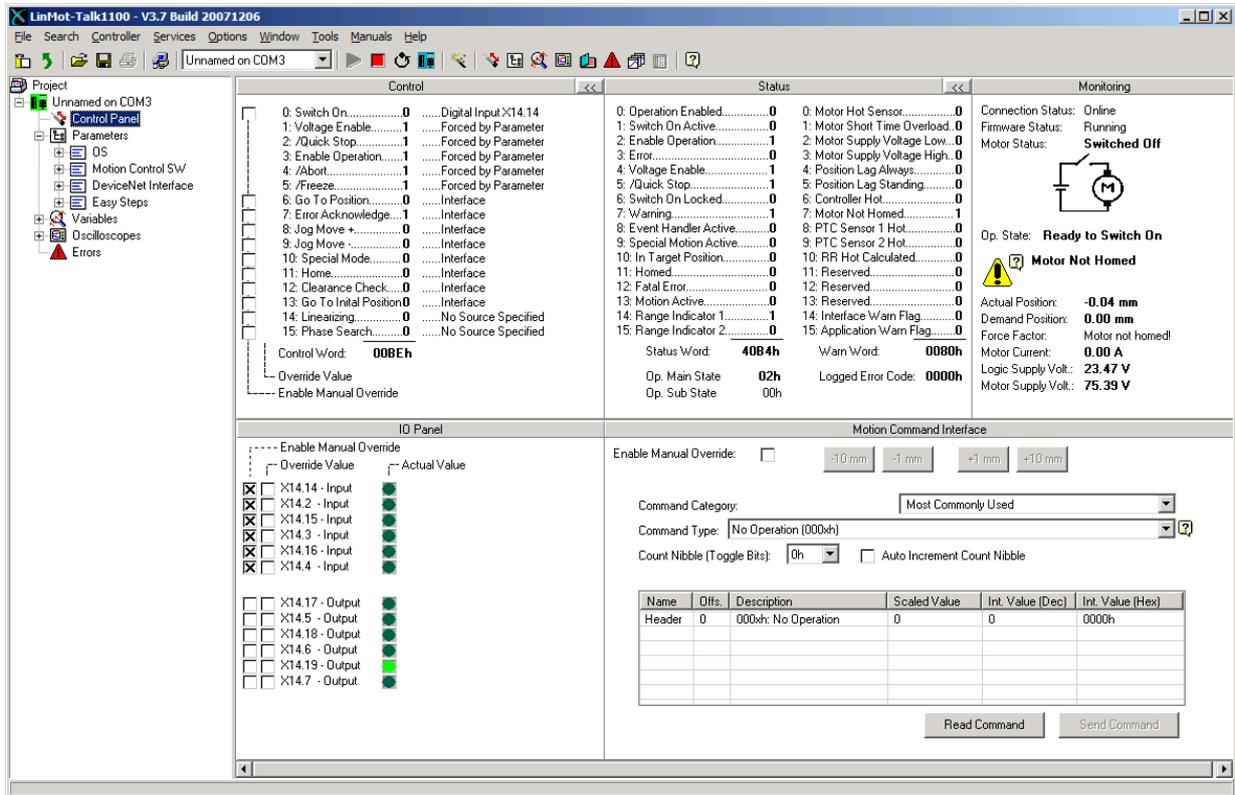
The sliders are not symmetric. The value of ZP (Zero Position) depends on the mounting direction relative to the stator. Therefore the available stroke range changes with the mounting direction.

Derived Settings	Value	Comment
STATOR	PS01-37x120-HP-C20	
Article Number	0150-1252	
Stator Length	227 mm	
Stator Mass	740 g	
SLIDER	PL01-20x600/540-HP	
Article Number	0150-1510	
Slider Length	600 mm	
Slider Mass	1327 g	
MOTOR	P01-37x120-HP/400x480-C20	
Maximal Stroke (S)	480 mm	
Shortened Stroke (SS)	400 mm	
Electromagnetic Zero Position (ZP)	230 mm	
Force Constant	20.4 N/A	
Edge Force (Fb)	67 %	

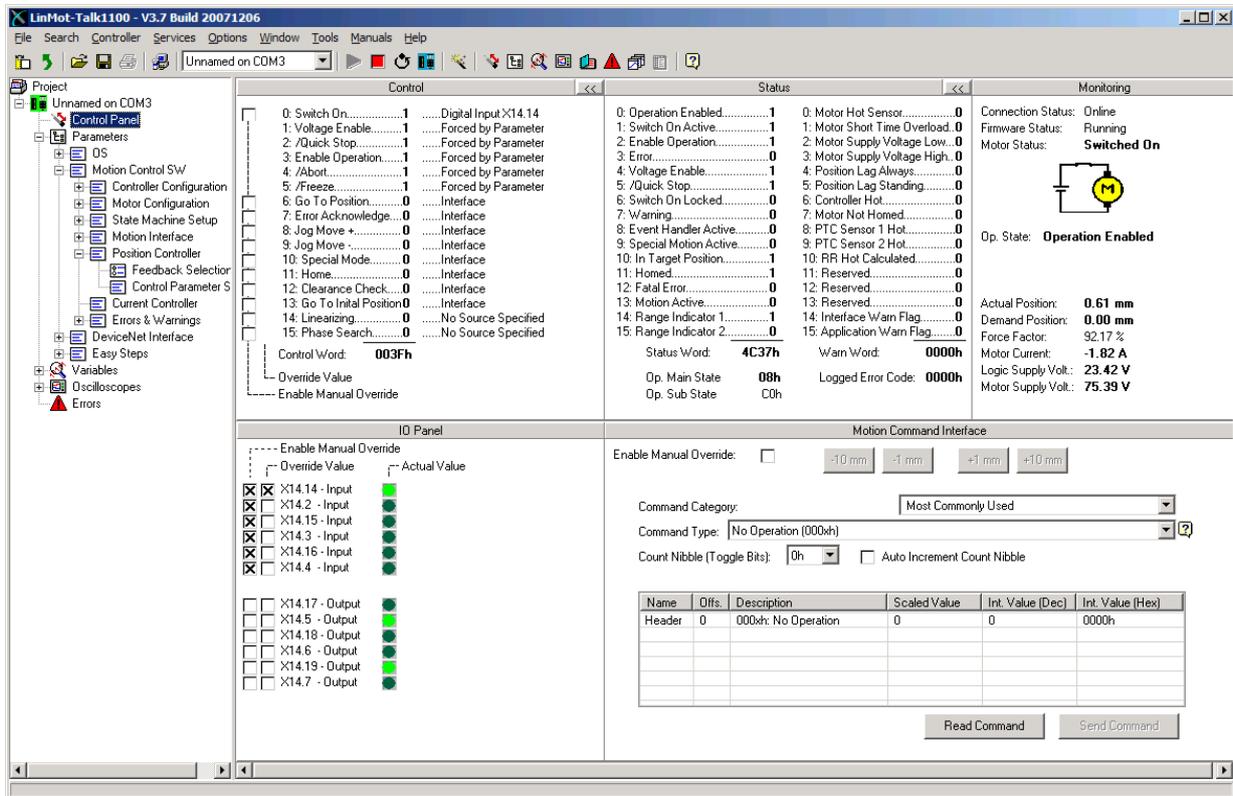
Help
< Back
Next >
Finish
Cancel

Switch on the motor power supply.

The EasySteps software can be used to control the motor over digital inputs and outputs. For testing purposes, you can wire these inputs and outputs to your control panel or simply force the values from the IO panel section in the control panel of the LinMot-Talk1100 software:

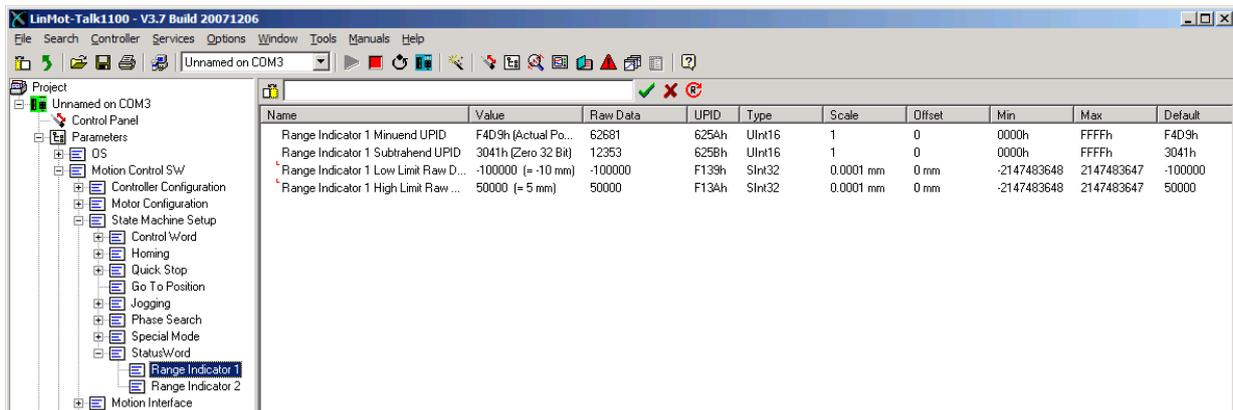


Set the input X14.14 high in order to get the motor controlled. It will automatically move for homing:



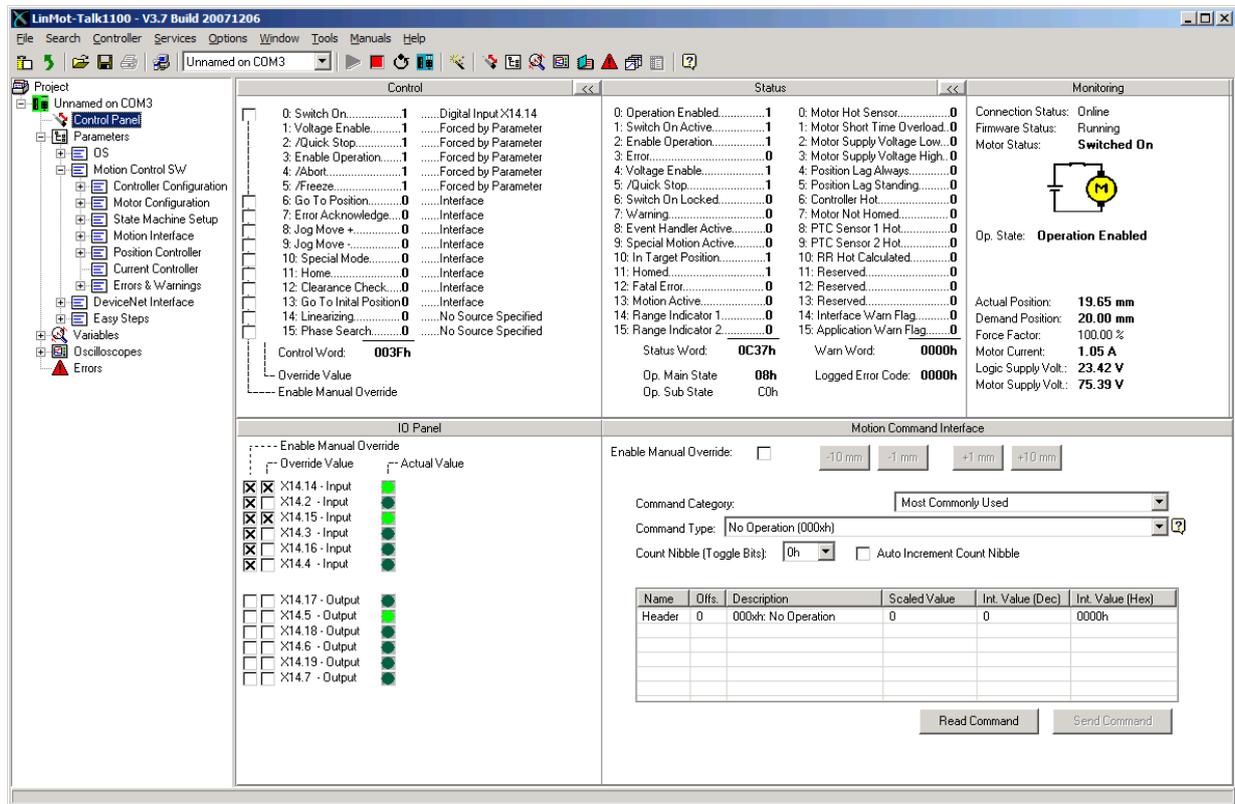
After the homing sequence, the output on X14.5 goes high indicating the motor is in target position. Also the range indicator 1 output goes high (position range between -10mm and 5mm).

The range indicator 1 is configured as shown:



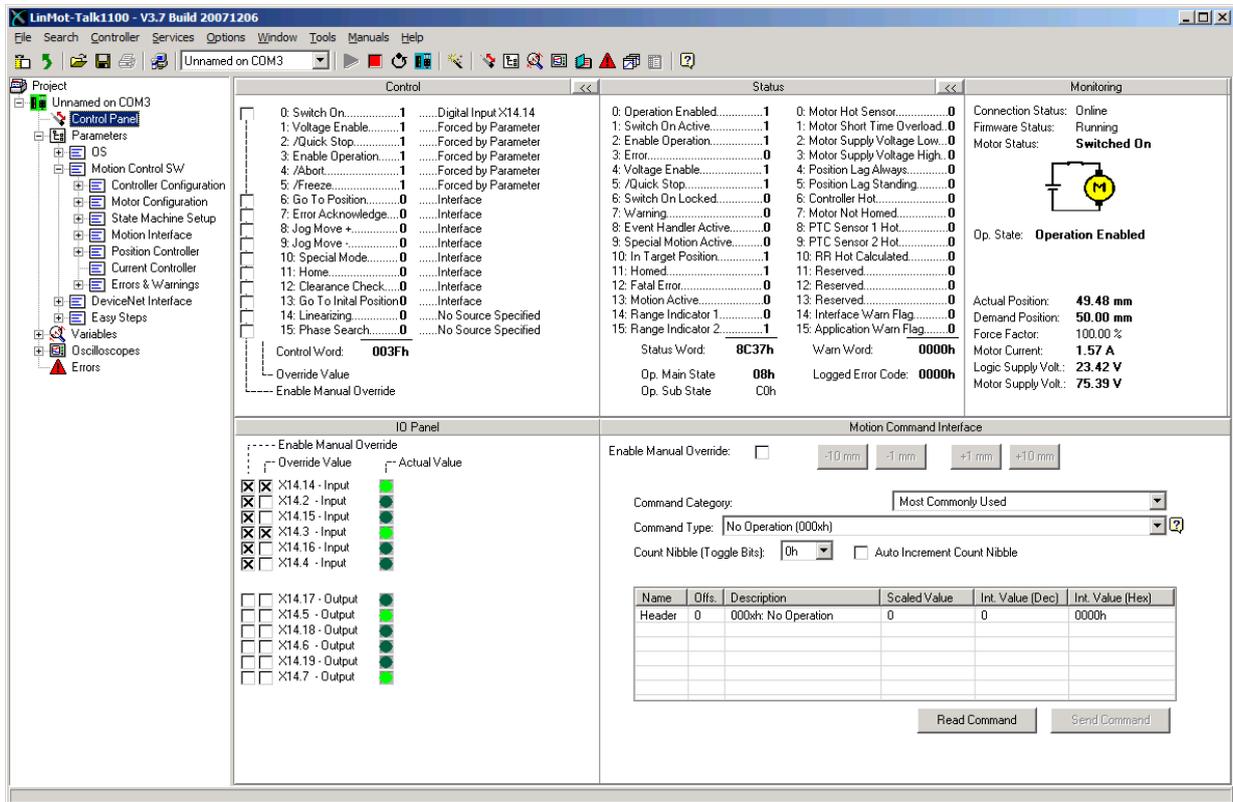
This output is high, if the term (Actual Position - 0) is in the range -10mm .. 5mm.

Set the input X14.15 high, so the motor moves to 20mm. This absolute motion command is configured in the EasySteps parameter section.



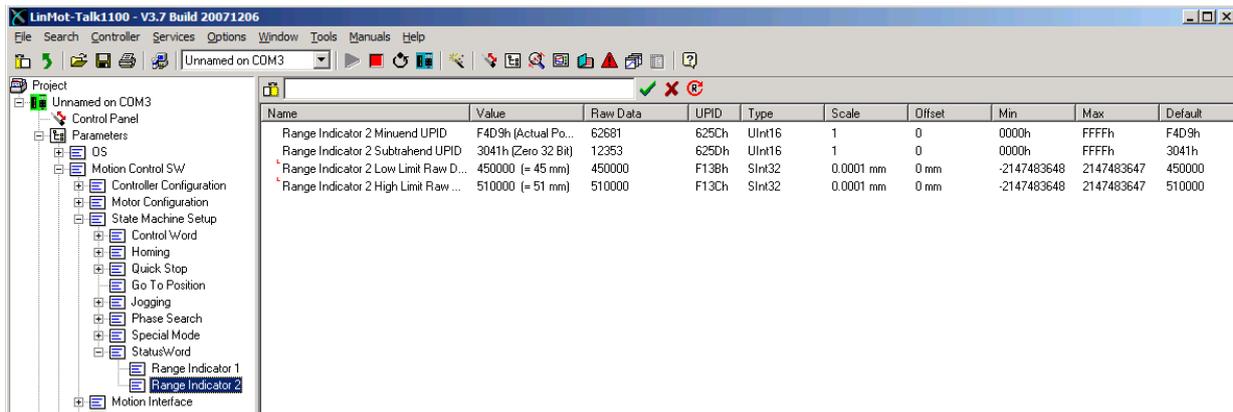
The output of range indicator 1 (mapped to X14.19) has been cleared. The output in target position (X14.5) may be cleared for a short time and will be set again.

Set the input X14.3 high, so motor moves to 50mm. This absolute motion command is configured in the EasySteps parameter section.



The output of range indicator 2 (mapped to X14.7) has been cleared. The output in target position (X14.5) may be cleared for a short time and will be set again.

The range indicator 2 is configured as shown:



This output is high, if the term (Actual Position – 0) is in the range from 45mm to 51mm.

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Set the input X14.2 high, the motor moves to 0mm. This absolute motion command is configured in the EasySteps parameter section:

The screenshot shows the LinMot-Talk1100 software interface. The Control Panel on the left lists digital inputs X14.14 to X14.19. The Motion Command Interface on the right shows the motor moving to 0.00 mm. The Status panel shows the motor is in the 'Operation Enabled' state.

Name	Offs.	Description	Scaled Value	Int. Value (Dec)	Int. Value (Hex)
Header	0	000xh: No Operation	0	0	0000h

Set the input X14.16 high, the motor moves to 5mm. This incremental motion command is configured in the EasySteps parameter section as well.

The screenshot shows the LinMot-Talk1100 software interface. The Control Panel on the left lists digital inputs X14.14 to X14.19. The Motion Command Interface on the right shows the motor moving to 5.00 mm. The Status panel shows the motor is in the 'Operation Enabled' state.

Name	Offs.	Description	Scaled Value	Int. Value (Dec)	Int. Value (Hex)
Header	0	000xh: No Operation	0	0	0000h

Set the input X14.16 high, the motor moves to 10mm. This incremental motion command is configured in the EasySteps parameter section.

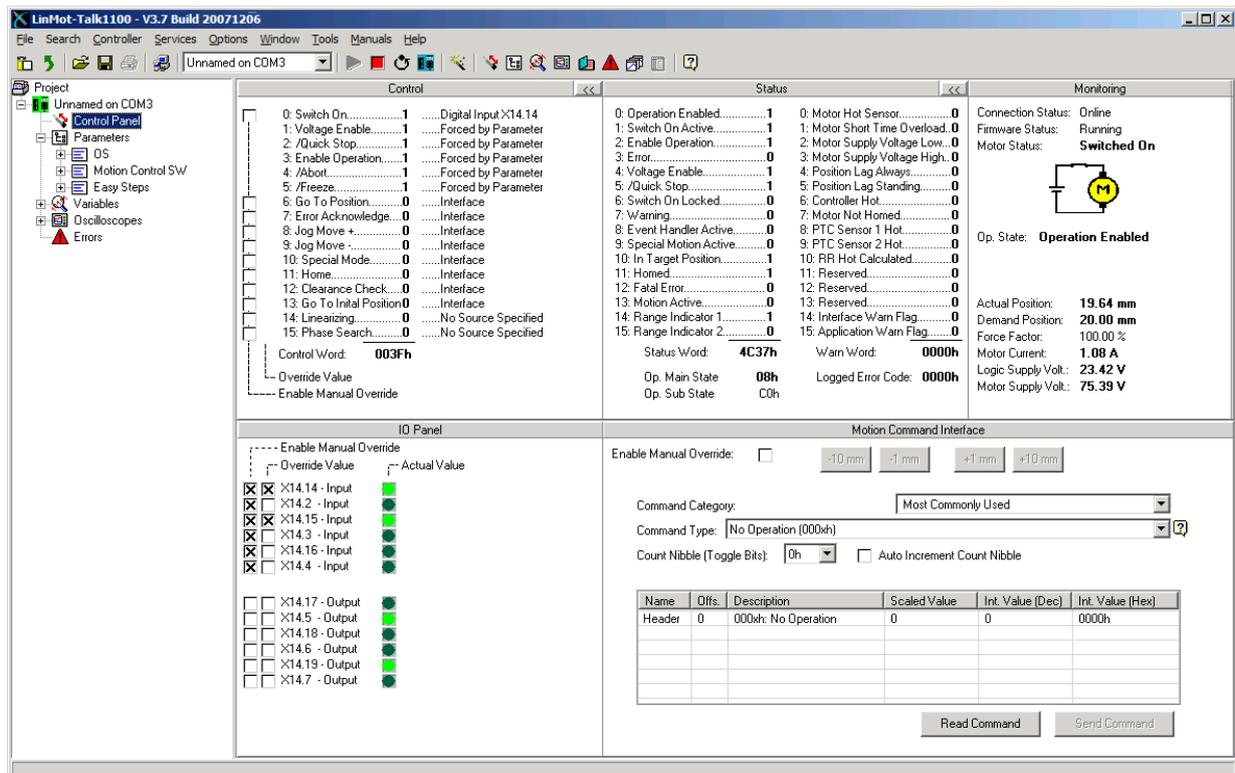
The screenshot displays the LinMot-Talk1100 software interface, version V3.7 Build 20071206. The interface is divided into several sections:

- Control Panel:** Lists 15 digital inputs (X14.14 to X14.19) and their states. X14.14 is Digital Input, X14.15 is Forced by Parameter, X14.16 is Forced by Parameter, X14.17 is Interface, X14.18 is Interface, and X14.19 is No Source Specified.
- Status Panel:** Shows 15 operational parameters. Key values include: Operation Enabled (1), Motor Hot Sensor (0), Motor Short Time Overload (0), Motor Supply Voltage Low (0), Motor Supply Voltage High (0), Position Lag Always (0), Position Lag Standing (0), Controller Hot (0), Motor Not Homed (0), PTC Sensor 1 Hot (0), PTC Sensor 2 Hot (0), RR Hot Calculated (0), Reserved (0), Fatal Error (0), Motion Active (0), Range Indicator 1 (0), Interface Warn Flag (0), Application Warn Flag (0).
- Monitoring Panel:** Displays motor status: Connection Status: Online, Firmware Status: Running, Motor Status: Switched On. It also shows a motor icon and the operational state: Op. State: Operation Enabled. Actual Position: 9.71 mm, Demand Position: 10.00 mm, Force Factor: 93.76%, Motor Current: 0.88 A, Logic Supply Volt: 23.42 V, Motor Supply Volt: 75.39 V.
- IO Panel:** Shows the status of digital inputs and outputs. Inputs X14.14 through X14.19 are all checked (green). Outputs X14.17 through X14.19 are also checked (green).
- Motion Command Interface:** Shows the command type set to 'No Operation (0000h)' and the count nibble set to '0h'. It also includes buttons for '-10 mm', '-1 mm', '+1 mm', and '+10 mm'.

An incremental motion command can be used e.g. for stacking or de-stacking applications.

To change positions without using the LinMot-Talk1100 software, the EasySteps software supports the possibility of teaching positions manually over a single separate input. The following sequence has to be executed for a correct teaching:

First, select the motion, which has to be changed, by setting this output high. The motor moves to the position.



Then set the teach in input (X14.4 high), this makes the motor currentless, so the motor can be moved manually to the new position (in this example 30.03mm). Note: in vertical applications the slider can drop down due to gravitation.

The screenshot shows the LinMot-Talk1100 software interface with the following sections:

- Control Panel:** Lists 15 digital inputs (X14.1 to X14.15) and their states. X14.4 is set to '1' (high). Control Word is 003Fh.
- Status Panel:** Shows 15 status indicators. Motor Hot Sensor is 0, Motor Short Time Overload is 0, Motor Supply Voltage Low is 0, Motor Supply Voltage High is 0, Position Lag Always is 0, Position Lag Standing is 0, Controller Hot is 0, Motor Not Homed is 0, PTC Sensor 1 Hot is 0, PTC Sensor 2 Hot is 0, RR Hot Calculated is 0, Reserved is 0, Motion Active is 0, Reserved is 0, Range Indicator 1 is 1, Interface Warn Flag is 0, Application Warn Flag is 0. Status Word is 4837h, Warn Word is 0000h.
- Monitoring Panel:** Shows Connection Status: Online, Firmware Status: Running, Motor Status: Switched On. Op. State: Operation Enabled. Actual Position: 30.03 mm, Demand Position: 20.00 mm, Force Factor: 100.00 %, Motor Current: 0.00 A, Logic Supply Volt.: 23.42 V, Motor Supply Volt.: 75.39 V.
- IO Panel:** Shows Enable Manual Override section with Override Value and Actual Value for inputs X14.14 to X14.16 and outputs X14.17 to X14.7.
- Motion Command Interface:** Shows Enable Manual Override checkbox, movement buttons (-10 mm, -1 mm, +1 mm, +10 mm), Command Category: Most Commonly Used, Command Type: No Operation (0000h), and a table for command nibbles.

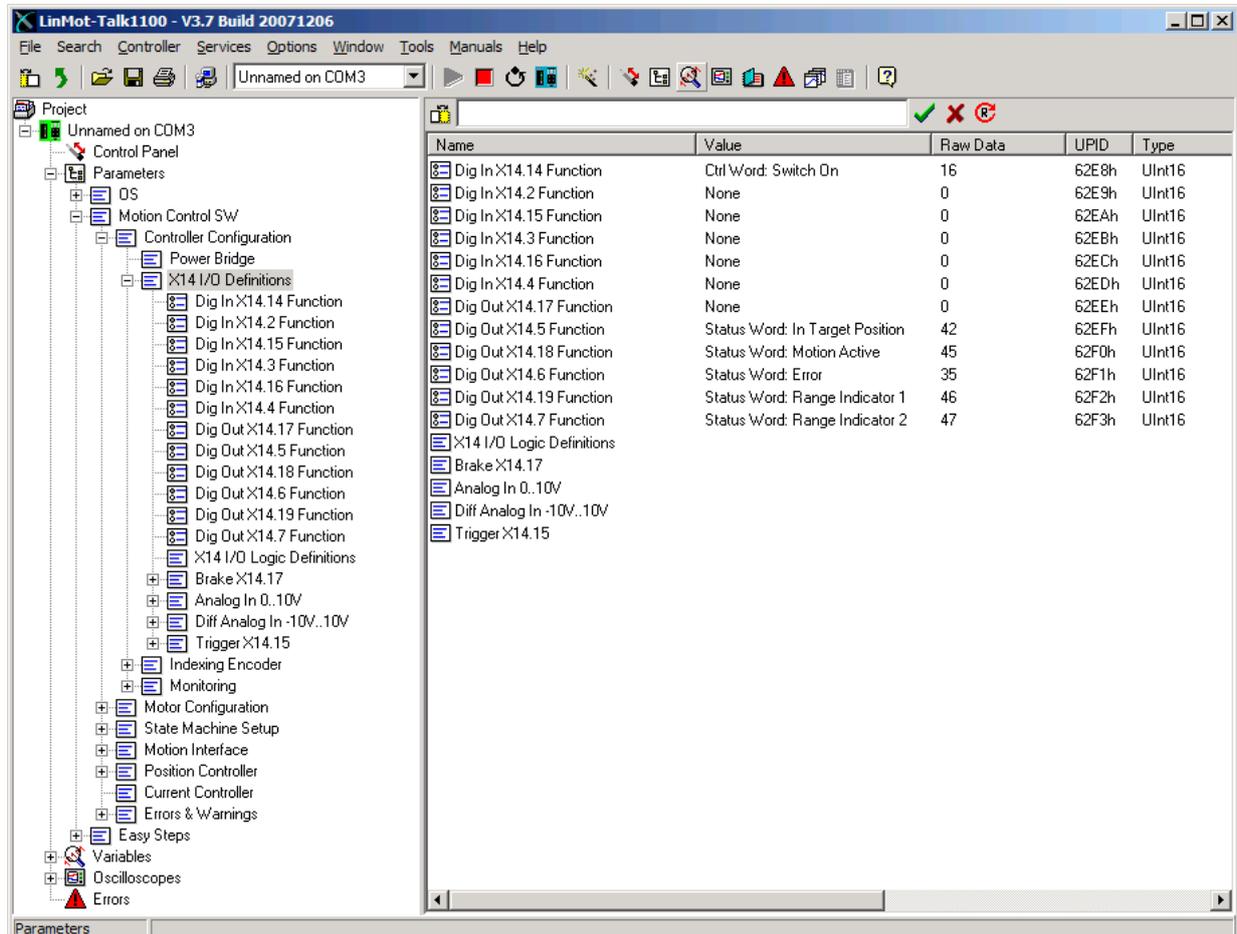
Name	Offs.	Description	Scaled Value	Int. Value (Dec)	Int. Value (Hex)
Header	0	0000h: No Operation	0	0	0000h

When the motor is moved to the desired position, set the teach in input low, the motor is now position controlled and powered again, and the new position for the selected IO motion is stored remanently (survives a power cycle).

Quick Start Configuration

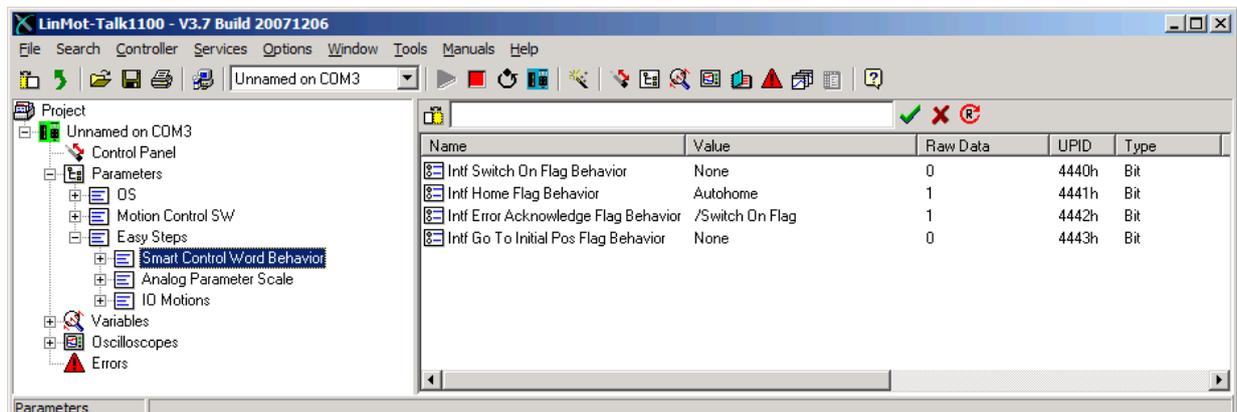
Input and Output Configuration

The inputs and outputs in the quick start example are configured as:



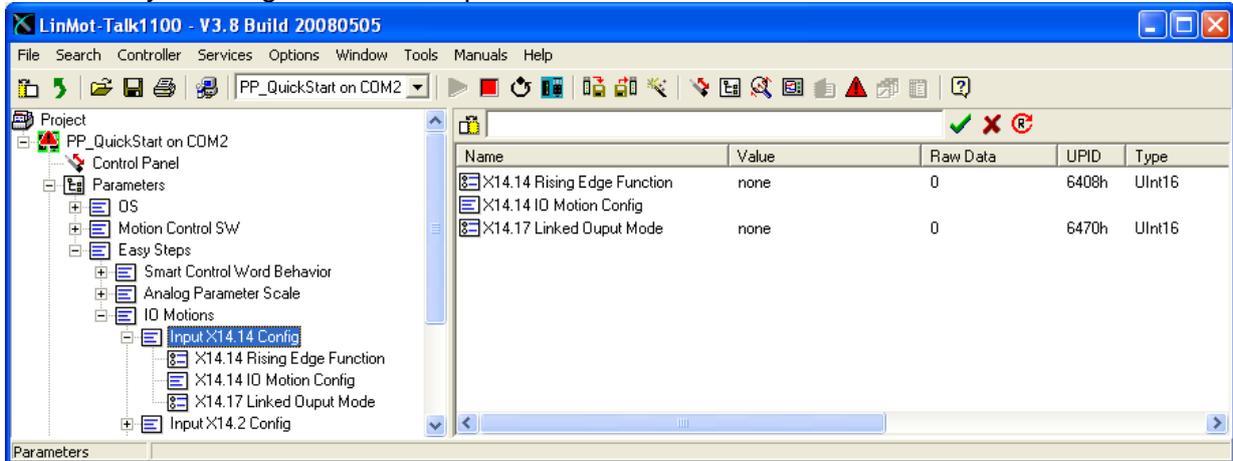
The input X14.4 is mapped to the control word bit switch ON. In the EasySteps configuration the additional behavior of this bit is configured as following:

- Auto home
- Error acknowledge to falling edge of the “Switch On“ flag

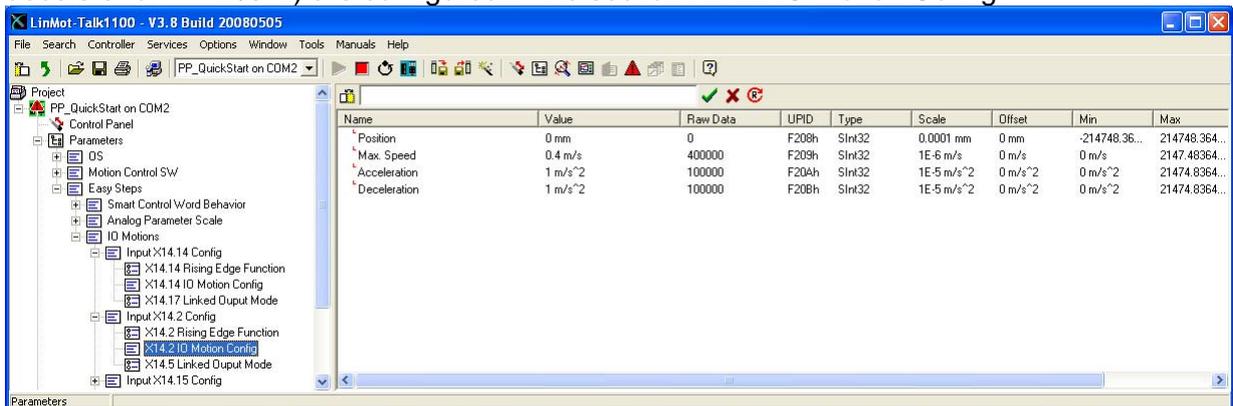


IO Motion Configuration

The input X14.14 is mapped to the control word bit “Switch On”, for this reason no IO motion functionality is configured for this input.

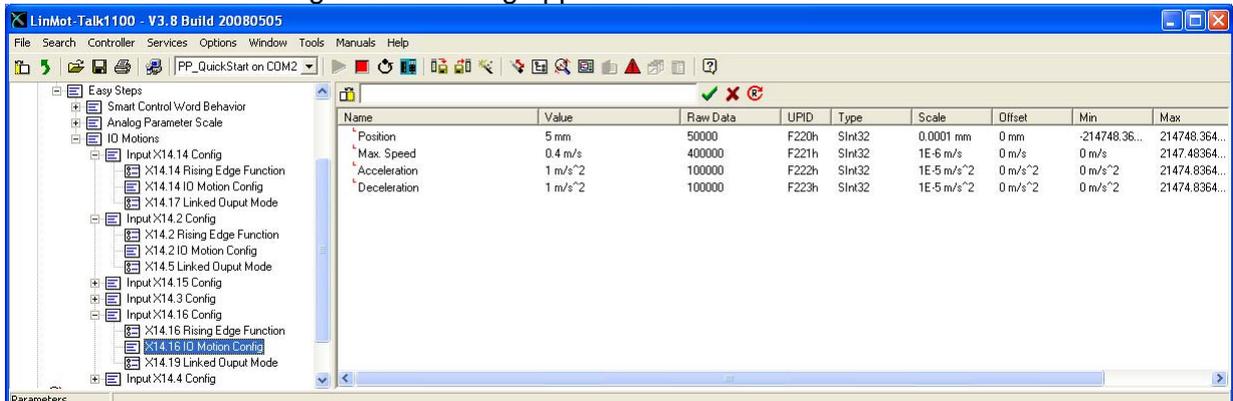


On the input X14.2 no MC SW functionality is mapped, so it's free to use as IO motion input. In the quick start example the motion go to absolute position is configured. The motion parameters (target position = 0mm, max speed = 0.4m/s, acceleration = 1m/s² and deceleration = 1m/s²) are configured in the section X14.2 IO Motion Config.



On the inputs X14.15 and X14.3 are also go to absolute position commands, with target positions 20mm and 50mm configured.

On the input X14.16 'Increment Target Position' IO motion command is configured. In this case the parameter position = 5mm, means not the absolute position but the target position's increment. So on a rising edge of X14.16 the old target position is incremented by 5mm. A negative position value would decrement the target position. This kind of motion commands can be used for stacking or de-stacking applications.



On the input X14.4 the 'Teach In IO Motion' is configured. This functionality is only available on this input.

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