

# 6 Homing Programs

## Single-Axis Homing

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This program describes automatic homing for an axis. We assume that axis 1 home switch is connected to the Mx4 input IN1. The negative and positive homing speeds are set to a small value.

The process of homing starts with driving toward the home switch. Upon the receipt of this signal the axis decelerates to a stop, index (marker) pulse interrupt is enabled and a move in opposite direction is initiated. Upon the receipt of index pulse interrupt, the location of index pulse is saved in `reference_pos` and the axis decelerates to a stop. The move parameter, `reference_pos`, in conjunction with trapezoidal move command, `AXMOVE`, will drive the axis to the marker position.

```
#macro "c:\dspcg\applications\homing\system.lib"
#macro "c:\dspcg\applications\homing\macro.hll"

plc_program:

    run_m_program (var_speed)

end

var_speed:
    ; set control gains for motor 1
    ctrl (1, 0, 2000, 1000, 1000)

    ; set maximum acceleration for motor to 1
    maxacc (1, 1)

    ; home axis 1
    homeM(0x1, inp1_reg, 0x0002, -0.5, 0.1)

end
```

## Multi-Axis Homing

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This program describes automatic homing for multiple axes. We assume that axis 1 and axis 2 home switches are connected to the Mx4 inputs IN1 and IN3 respectively. The negative and positive homing speeds are set to small values. The process of homing starts with driving toward the home switches. Upon receipt of these signals the two axes decelerate to a stop, index (marker) pulse interrupt is enabled and a move in opposite direction is initiated. Upon the receipt of index pulse interrupt, the locations of these index pulses are saved in `reference_pos1` and `reference_pos2`, and both axes decelerate to a stop. The move parameters, `reference_pos1`, and `reference_pos2`, in conjunction with trapezoidal move command, `axmove`, will move the axes to the marker position.

```
#macro "c:\dspcg\applications\homing\system.lib"
#macro "c:\dspcg\applications\homing\macro.hll"

plc_program:

    run_m_program (var_speed)

end

var_speed:
    ctrl (1, 0, 2000, 1000, 1000) ; set control gains for
motor 1
    maxacc (1, 1) ; set maximum acceleration
for motor to 1

    home2(inp1_reg, 0x0004, -0.5, 0.1) ; home axis 2
    home6(inp1_reg, 0x0020, -0.5, 0.1) ; home axis 6

    var45 = ((sqrt(var44 *pos4))/(timer-1024)+(var47=-
pos1*var6))*sin(pos1*10)

end
```