

Stepper Motor Control - LCD

User manual

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Confidentiality

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Scope

This is Stepper Motor Control LCD user manual.

Audience

All users of Stepper Motor Control LCD user manual.

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- [1] G. Jansa, Stepper Motor Control – Installation and Configuration, 1.0

1. Introduction

LCD on the front panel of M-Box can be used for local manipulation of motors.

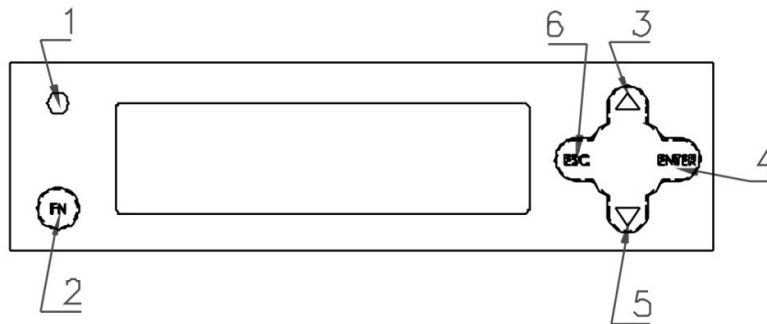


Figure 1: LCD front panel

Names of the buttons are described in the table below.

1	Power LED
2	FN Button
3	Up Button
4	Enter Button
5	Down Button
6	ESC Button

2. Operating LCD

The LCD menu is divided into 3 levels:

- Root level
- Motor select level
- Motor control level

If an error occurs in any level, LCD will display “ERROR” along with the error number at the start of the first line. This error number can be used to find the root cause of the error. The following error numbers are currently supported:

- 0 – general M-Box error
- 100 – PMAC error, this error can mean for example that both end limit switched are active
- 200 – PMAC communication error
- 300 – Shared memory error. Thus usually means that one of the programs (e.g. local control server) has crashed and the system is locked out. In addition any communication error (e.g. encoder communication error) will lead to this error since broken communication leads to long timeouts and locking out the system. Log file should be consulted for more details.
- 301 – Access control error. This error can occur if system mode does not allow certain operation (e.g. switching to LCD control while in local configuration mode).
- 400 – Encoder communication error

Detailed description of the error is logged into log file found on the M-Box. See [1] for more info where this file can be found.

2.1. Root level

2.1.1. Display

In root level the following is displayed:

- On the first line the name of the unit as configured in the configuration file. See more [1] for details on configuration.
- On the second line current system mode is displayed.

2.1.2. Functionality

To proceed to motor select level simultaneously hold down FN and ENTER buttons for two seconds, unit LCD displays the next level.



If current system mode is local configuration ERROR 300 will occur while trying to proceed to axis control level. The reason is that user from local control GUI has to explicitly switch from local configuration to local control or remote system mode.

To return to root level press ESC button in any other level.

2.2. Motor select level

Motor select level is used to select specific motor to display.

2.2.1. Display

In motor select level the following is displayed:

- First line: In the middle of the first line, the name of a motor is displayed. To the right of it, LCD can display a blinking “MD”, “INT”, or both. “MD” states, that the minimum distance of a slit pair is active. That means you can only move this motor towards the outer end. “INT” states, that interlock of this motor is active. That means you cannot move it.
- Second line: In the middle of the second line, the position of the motor is displayed. Left and right of it, LCD can display “EI” and “EO” respectively. “EI” indicates, that inner end switch of this motor is active. “EO” indicates, that outer end switch of this motor is active.
- If motor is not configured, LCD displays “free” in the first line.

Example:

- Both interlock and minimum distance switch are active
- Both inner end switch and outer end switch are active
- Motor position: 12.18 mm

	Motor1	MD	INT	
EI		12.18 mm		EO

Figure 2: Axis Select Level display example

2.2.2. Functionality

To select motor press either Up or Down button.

To proceed to motor control level press ENTER button on selected motor.

To return to root level press ESC button.



2.3. Motor control level

Motor control level is used to move selected motor.

2.3.1. Display

The display of motor control level is similar as in motor select level with addition that a triangle appears right of the motor name on the first list indicating that motor can be manipulated.

Example:

- Interlock active
- Inner end switch active
- Motor position: -20.00 mm

EI	Motor1 > INT -20.00 mm
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Figure 3: Axis Control Level display example

2.3.2. Functionality

To move the motor left or right, press and hold either Down or Up buttons respectively. Motor will move as long as the button is pressed. LCD will simultaneously update the motor position.

To return to motor select level press ESC button.