

# How to use PoPendant and PoKeys in Mach

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## 1. PoKeys configuration

Connect the PoKeys to computer. Download and install latest PoKeys software from [www.poscope.com](http://www.poscope.com) (Yes it is in PoKeys department of web page). Open software and upgrade firmware if it asks for. Be patient upgrade can take some time.

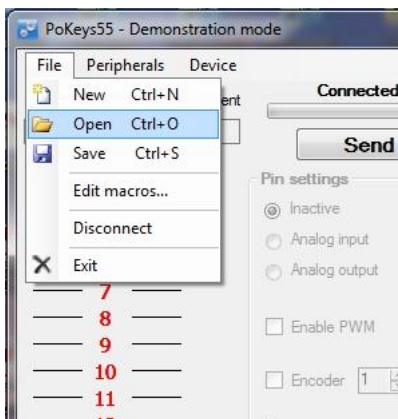


Figure 1: Open configuration

Go to: File -> Open (Figure 1) and find PoKeys configuration file which you downloaded from [www.poscope.com](http://www.poscope.com) . Click send to device and close PoKeys software.

## 2. PoKeys and PoPendant connection

Table 1: PoPendant connection to PoKeys

PoPendant "Item"	PoPendant "wire colour"	Function	PoKeys pin number
1	red	MPG supply	5V
2	black	MPG GND	GND
3	green	MPG A	1
4	white	MPG B	2
3*	purple	N.C.	N.C.
4*	purple/black	N.C.	N.C.
5	green/black	Lamp +	N.C.
6	white/black	Lamp -	GND
7	yellow	X axis	36
8	yellow/black	Y axis	25
9	brown	Z axis	26
10	brown/black	A axis	10
9*	pink*	B axis	11
10*	pink/black*	C axis	12
11	gray	x1	7
12	gray/black	x10	8
13	orange	x100	9
14	orange/black	Ctrl Switch	GND
15	Light blue	Estop	35
16	blue/black	Estop GND	GND
17	red/black	N.C	NC
	shield	shield	GND
	<b>NC.= not connected</b>		

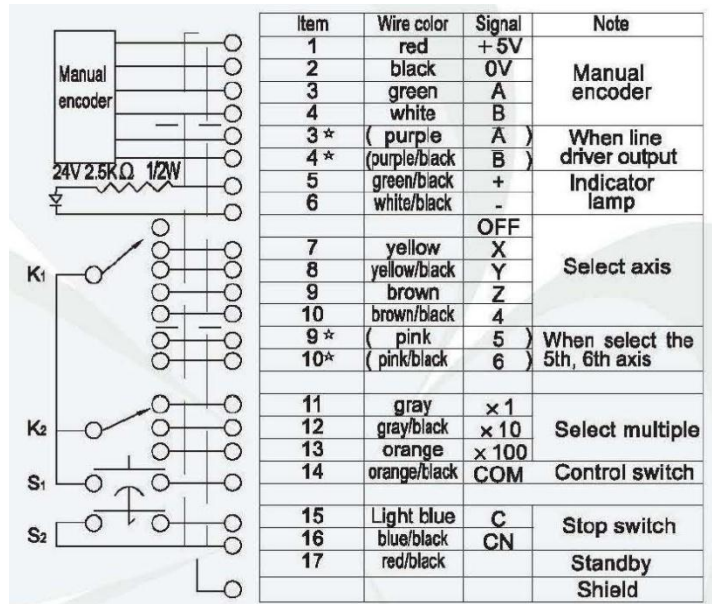


Figure 2: PoPendant internal wiring

### 3. Mach configuration

Download and install latest PoKeys plugin for Mach from [www.poscope.com](http://www.poscope.com) (Yes it is in PoKeys department of web page). Run Mach and follow manual.

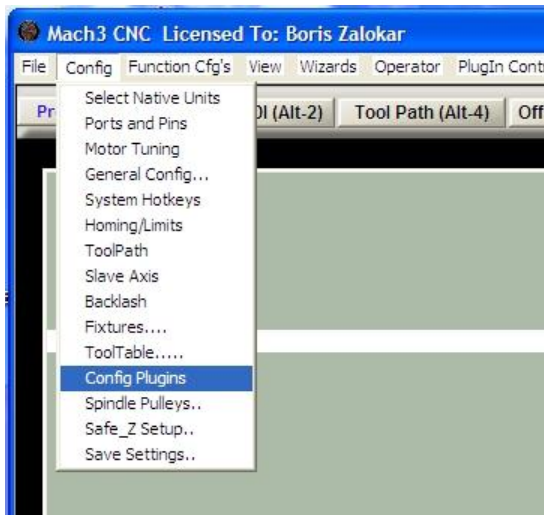


Figure 3: Config Plugins

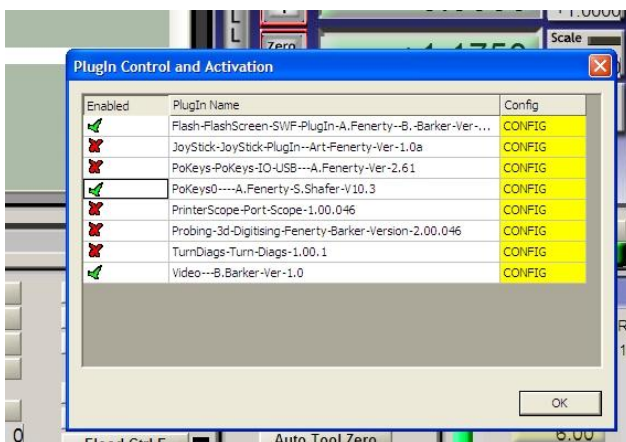


Figure 4: Tick near PoKeys0

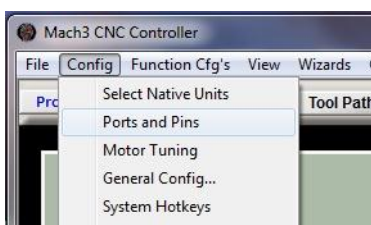


Figure 5: Config -> Ports and Pins

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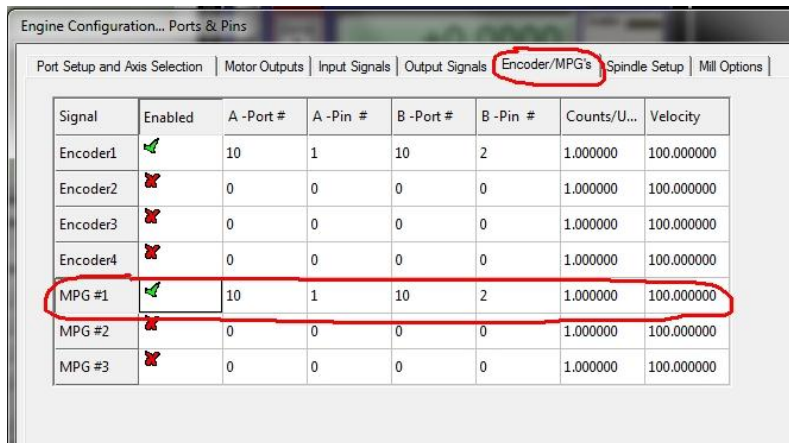


Figure 6: Check marked MPG settings and click "OK"

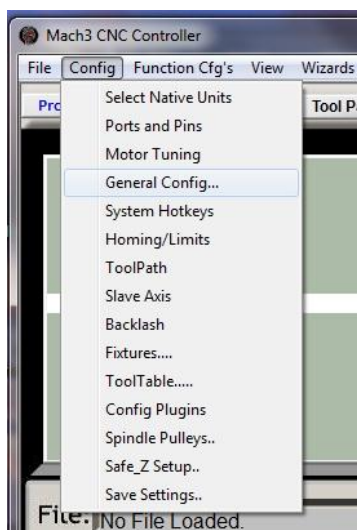


Figure 7: Config -> General Config

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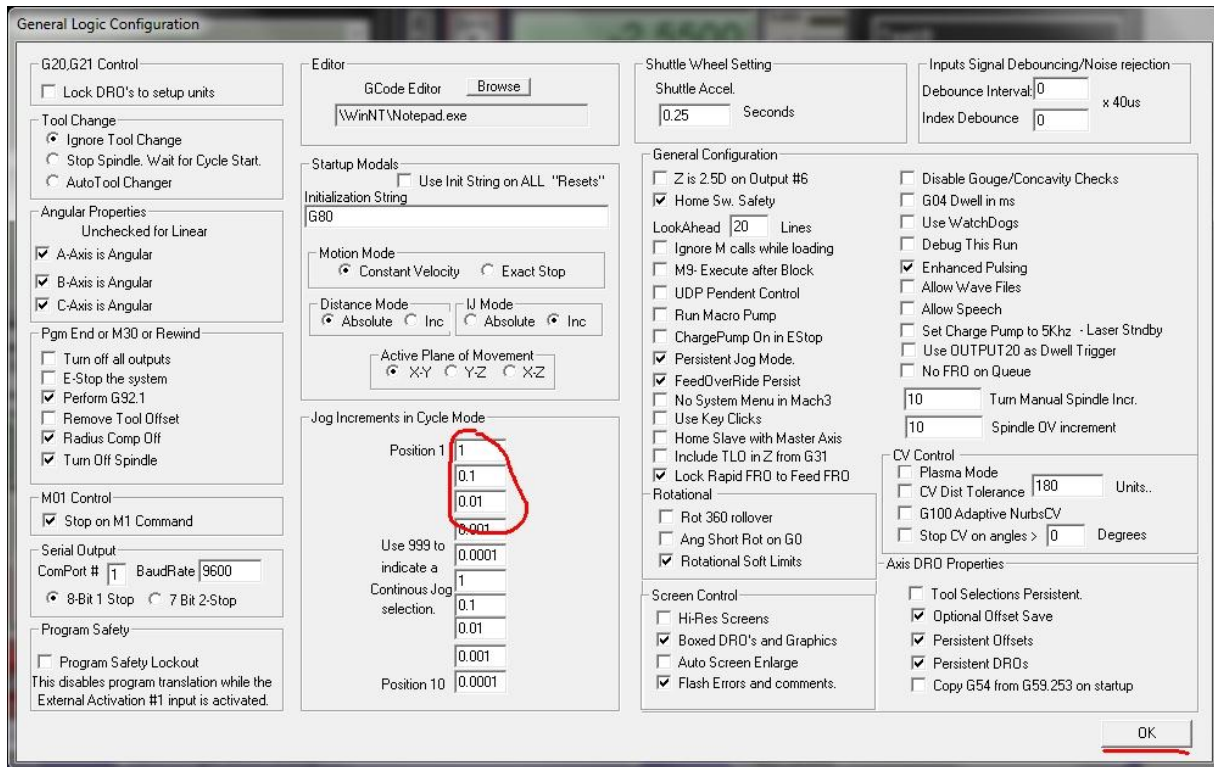


Figure 8: Check values in Jog Increments in Cycle mode, then hit "OK"

## Now close and open Mach

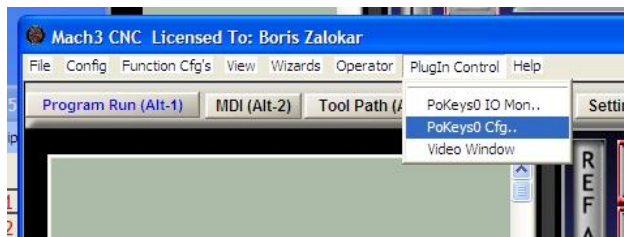


Figure 9: PlugIn Control -> PoKeys0 Cfg

## How to use PoPendant and PoKeys in Mach

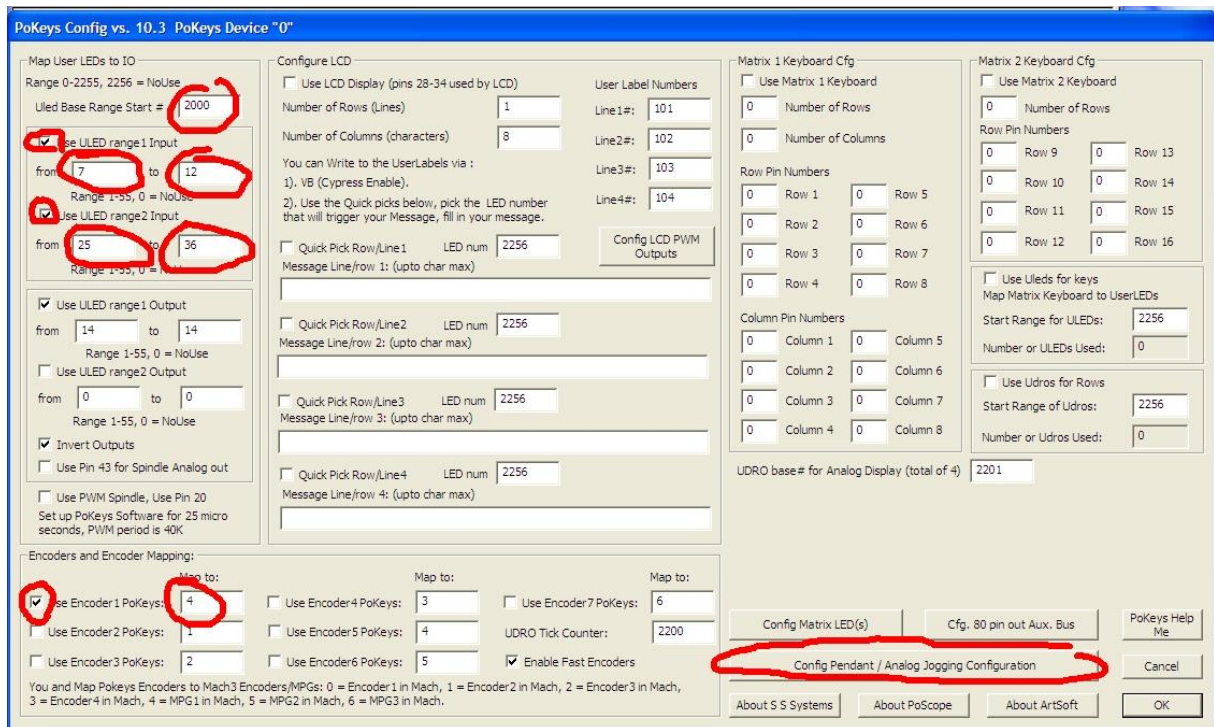


Figure 10: Check marked values and click Config Pendant / Analog Jogging Configuration

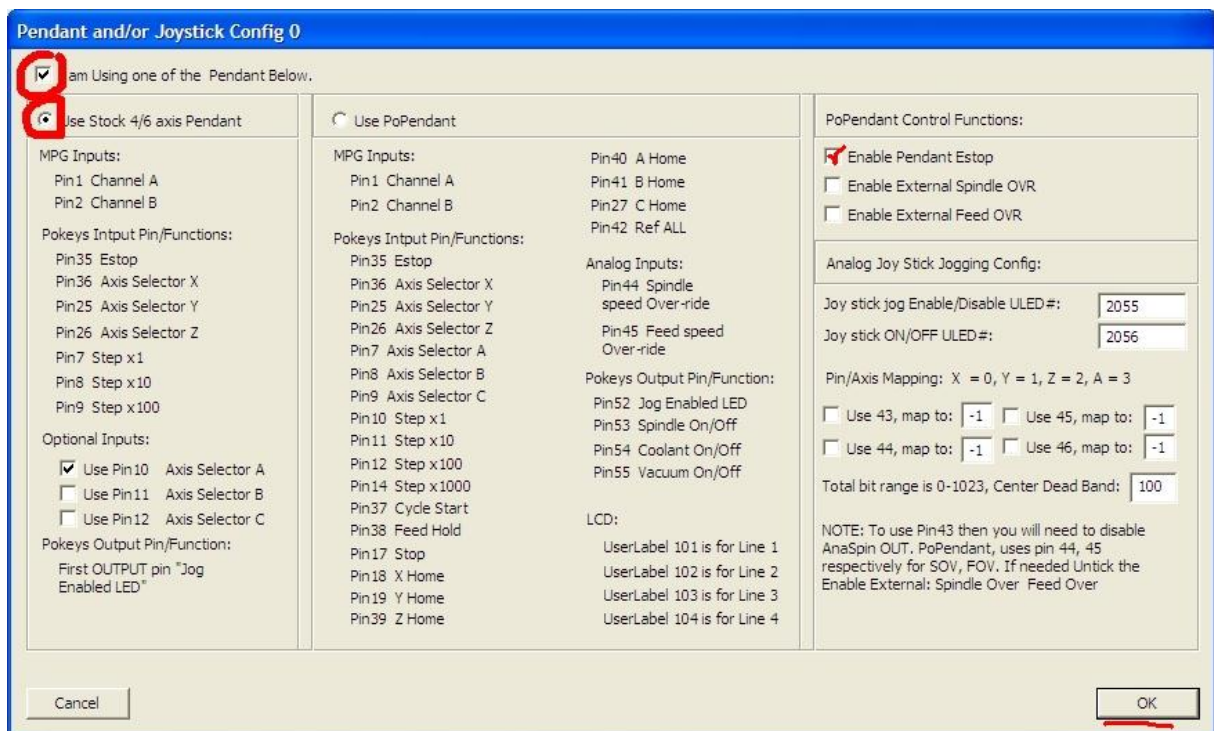


Figure 11: Set marked options and click OK, OK

Close and open Mach.

Now your Pendant should work. Choose axis and multiplier and press »Controll switch« on pendant. Now you can turn MPG and move machine.



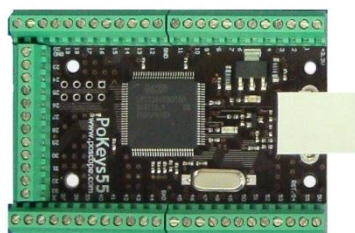
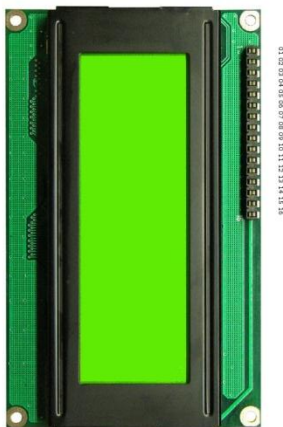
## 4. Using LCD from Mach

### 4.1 Connecting LCD to PoKeys

Use HD44780 based or compatible LCD. We are strongly recommended using 4 lines x 20 characters with backlight. These displays share standard pin-out that is listed in the table below:

Pin	Symbol	Function	PoKeys pin
1	Vss	Ground	<b>GND</b>
2	Vdd	Positive supply (usually 5V) <sup>1</sup>	<b>5V (usually) or 3.3V</b>
3	Vo	Contrast adjustment	<b>Variable resistor between GND and supply or PWM output</b>
4	RS	Instruction/data input	<b>Pin 29</b>
5	R/W	Read/write	<b>Pin 28</b>
6	E	Enable signal	<b>Pin 30</b>
7	DB0	Data bus – bit 0	Not connected
8	DB1	Data bus – bit 1	Not connected
9	DB2	Data bus – bit 2	Not connected
10	DB3	Data bus – bit 3	Not connected
11	DB4	Data bus – bit 4	<b>Pin 26 (or secondary 34)</b>
12	DB5	Data bus – bit 5	<b>Pin 25 (or secondary 33)</b>
13	DB6	Data bus – bit 6	<b>Pin 24 (or secondary 32)</b>
14	DB7	Data bus – bit 7	<b>Pin 23 (or secondary 31)</b>
15	Backlight (optional)		
16	Backlight (optional)		

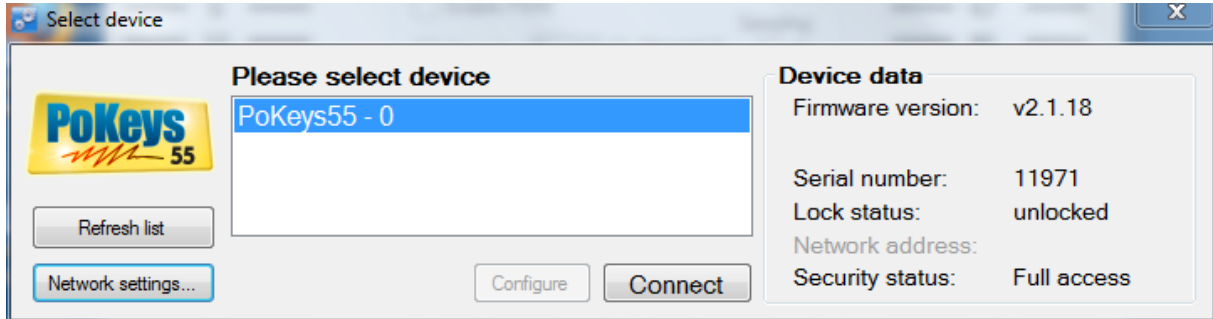
Table 2: LCD pin assignments



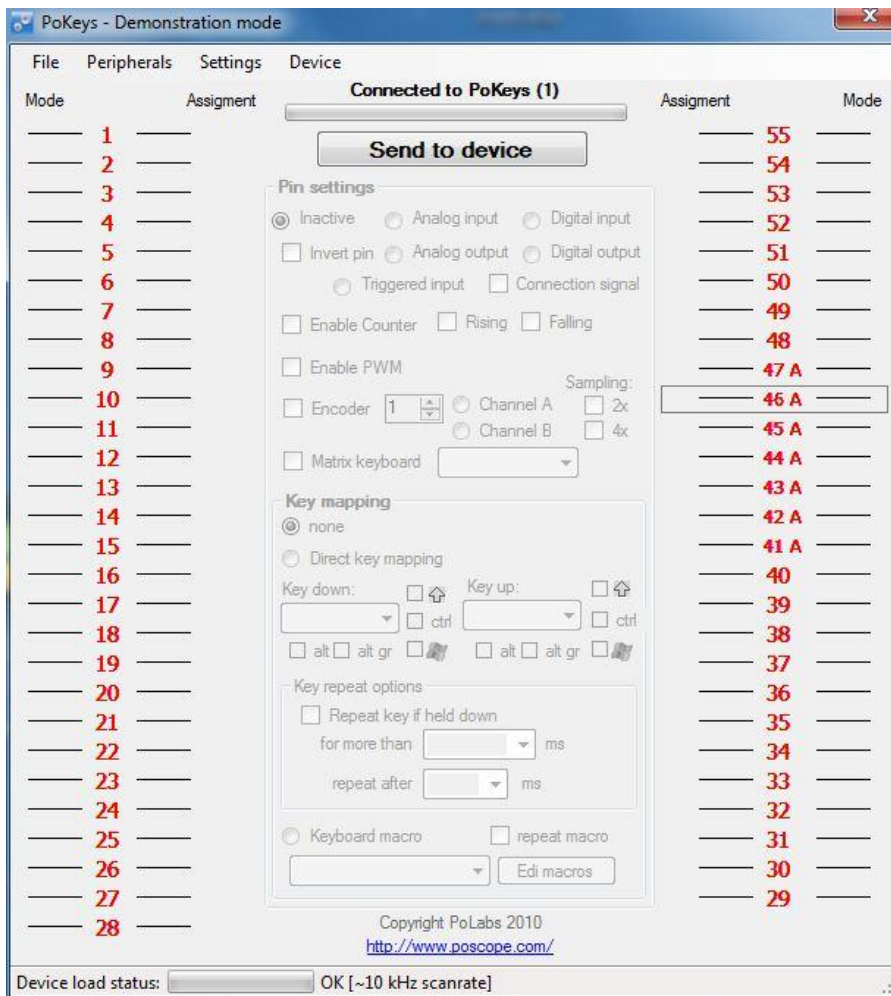
<sup>1</sup> Positive supply voltage depends on LCD used. User should find this information in datasheet of the LCD in use.

## 4.2 PoKeys software configuration

After PoKeys and LCD are connected, connect PoKeys to USB and run PoKeys software. These window is opened:



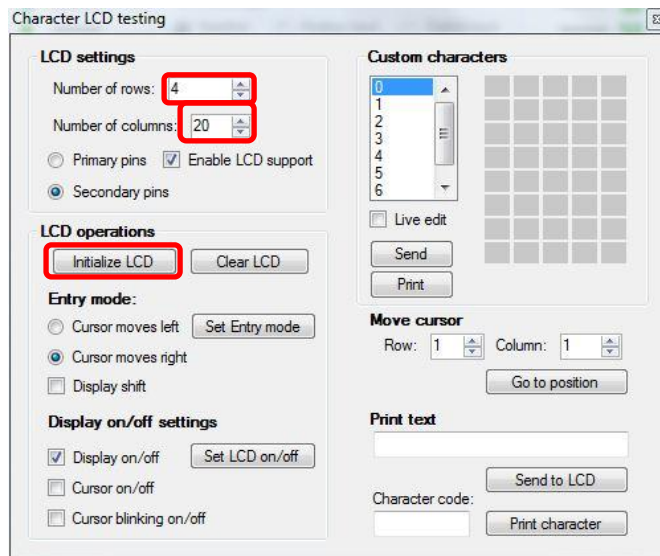
Choose your device and press connect button.



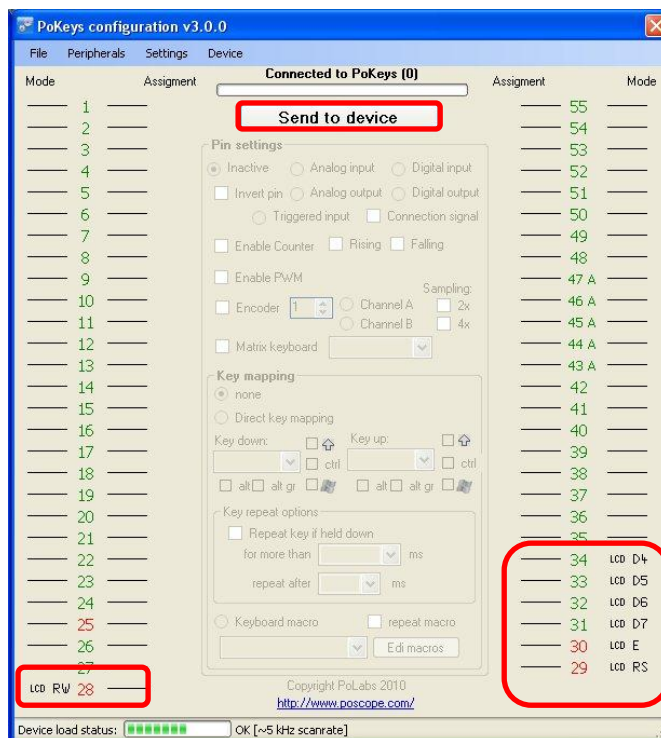
## How to use PoPendant and PoKeys in Mach

In these window all settings will be done. Please click Peripherals -> LCD test or press F3 on your computer's keyboard.

In following window basic LCD settings are done: Number of rows, Number of columns, Enable LCD support, Secondary pins.



We chose 4x20 characters LCD, Connected as secondary LCD. After that click on »Initialize LCD« button. Close window and if you followed manual, you should see something like these:



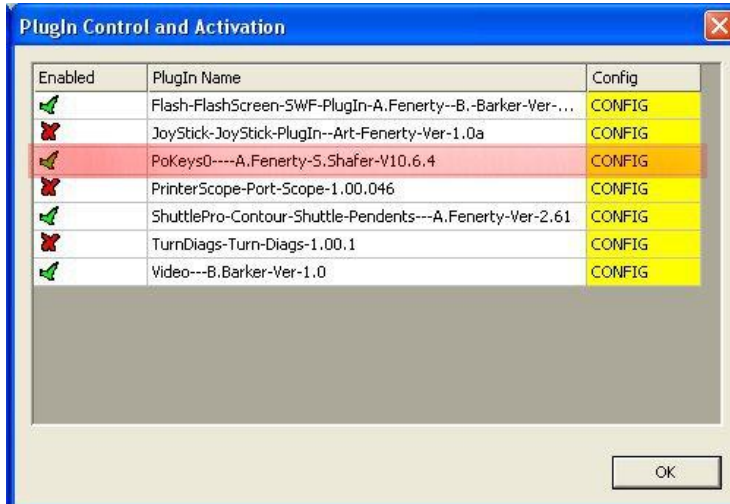
As seen on the picture, active pins are 28 – 34. At the end configuration must be saved to PoKeys with »Send to device button« and close PoKeys software.

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### 4.3 Settings in Mach

Download and run [Mach plugin](#), which should be downloaded from <http://www.poscope.com>.

Run Mach. Choose Config -> Configplugins and enable »PoKeys« as shown on picture bellow.



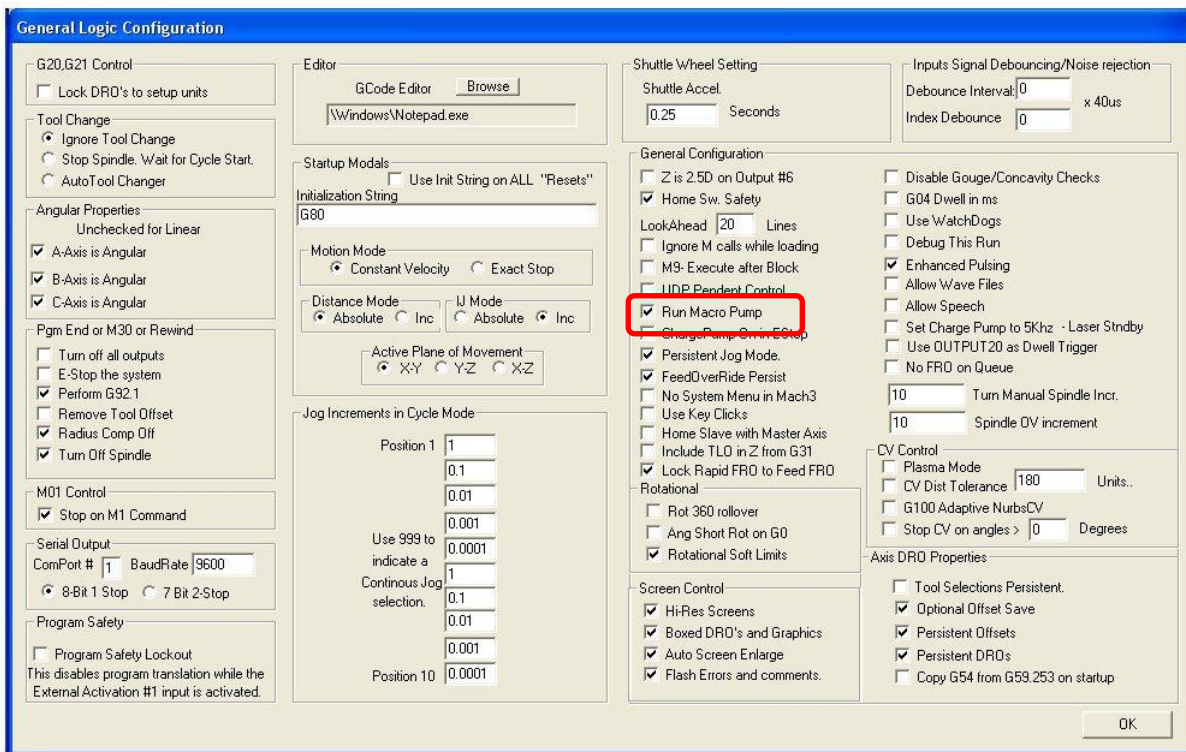
Click OK, close Mach and run it again. Go to PlugIn Control -> PoKeys0 Cfg.



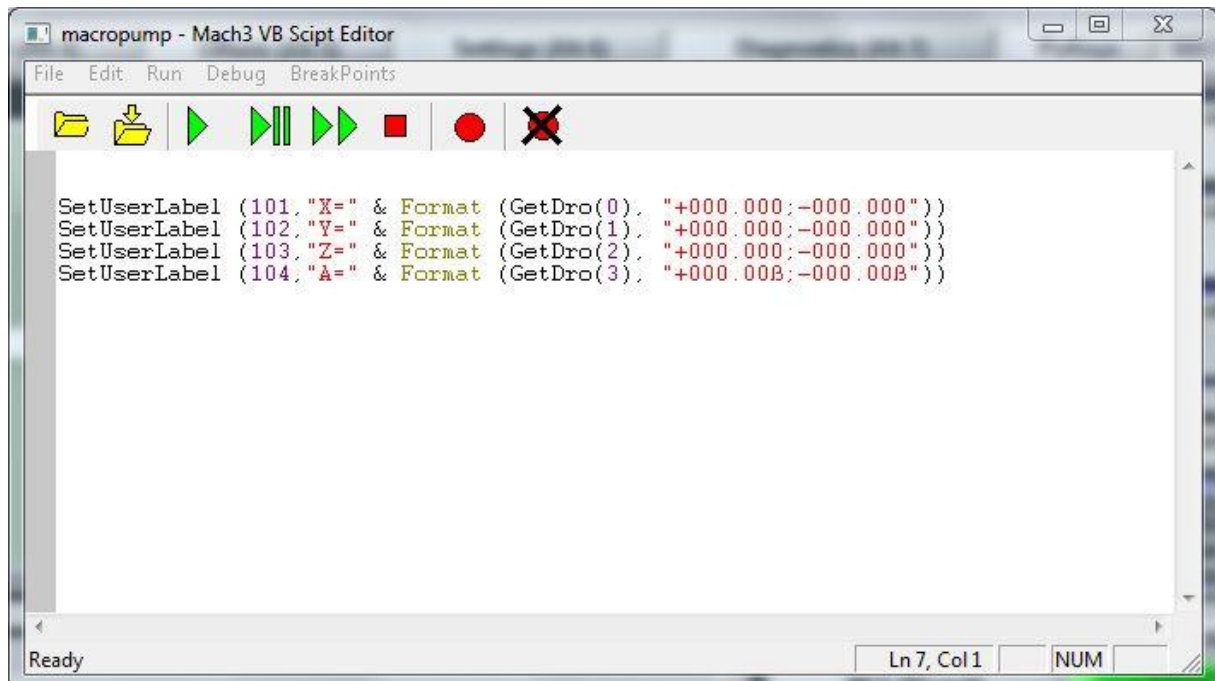


## How to use PoPendant and PoKeys in Mach

Restart Mach again and enable »Run Macro Pump« in »General LogicConfiguration« window.



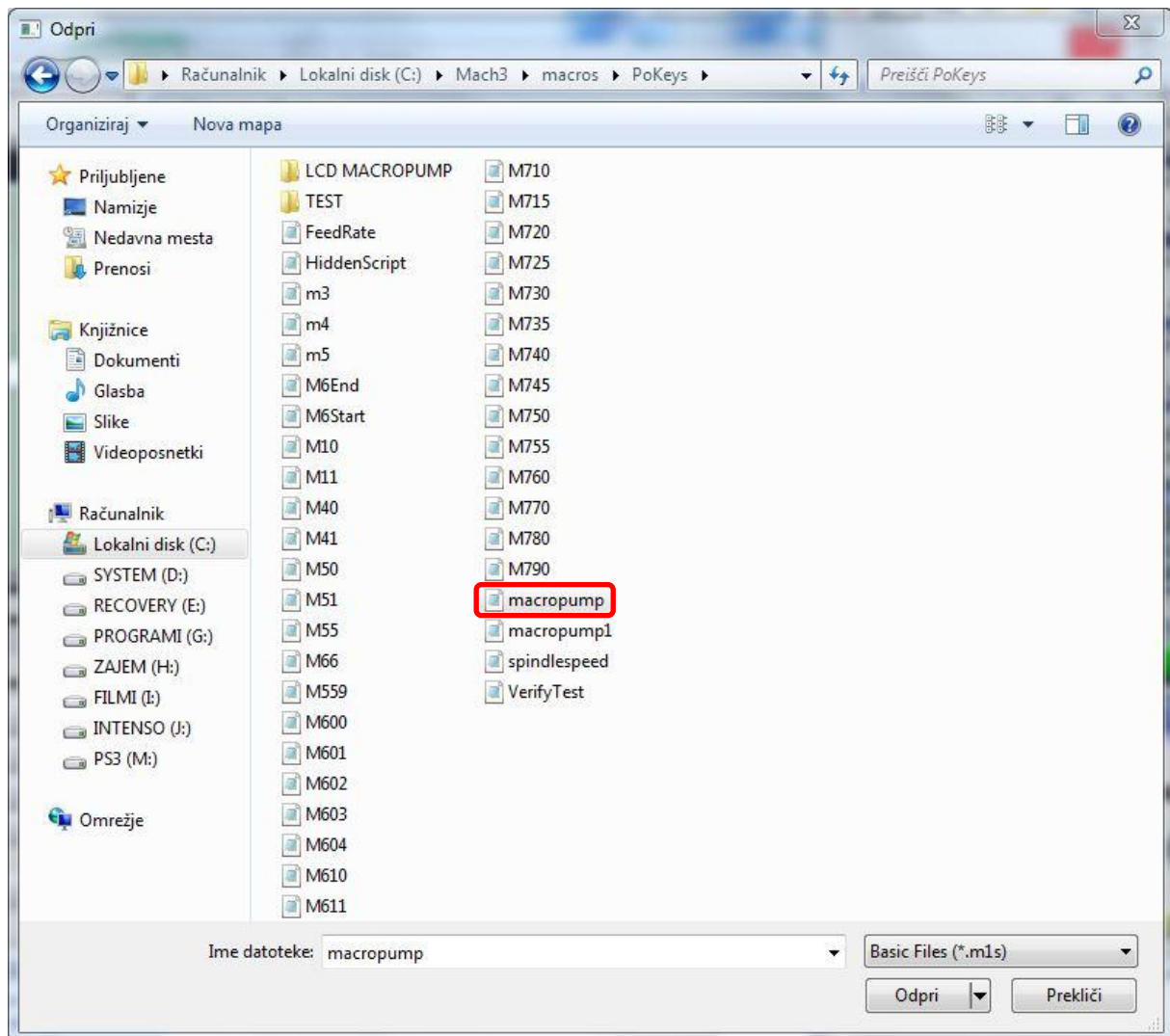
In menu »Operator« choose »VB Editor« in which script which will show datas on the LCD will be written.



These is example of very simple script which shows us axis positions on LCD.

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»Macropump.m1s« file must be located in »C:\Mach3\macros\Profilename« (Profilename is name of our current profile).



The other options is:

you can put a "String" into the message line under the quick picks, you tick the box of the row you want to write to, and put in the User or OEM LED that will "fire off" that message. When the light is LED is ON, then the message you put on the quick pick line will display on the LCD.

Quick pick example is this: if you tick use quick pick row/line1, and have it watch LED 800 (800 is the Estop OEM LED), and you put in the message box "Estop is Active", then when ever mach is in estop, then the message will display on line 1.

If you want to have Text contrast and Backlight brightness control, press the "Config LCD PWM outputs) and you can set the "sliders" to set how you want it to look, and it is remembered.

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